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An Address
ON
THE SCOPE AND NEEDS OF MEDICAL RESEARCH*

BY
SIR WALTER FLETCHER, K.B.E., C.B., F.R.S.
M.D., D.Sc., LL.D., F.R.C.P.

The phrase " medical research " covers an immensely wide field of scientific activity, in which workers of many different kinds are occupied. It is concerned directly and indirectly with the welfare of the bodies and minds of human beings, and if properly treated it must be a subject of the first interest to any audience. The word "medical" in this relation is likely to mislead. Strictly it refers only to the healing of disease, and it calls to mind at once a vision of doctors at the bedside and of their drugs and implements. Yet as used here it has a scope, not only in the work of original investigation, but also in preparing its results for practical application, which is indefinitely wider than that of the healing profession as such. I can give an actual definition of the real scope of medical research in formal terms. It is a formula which has been adopted by His Majesty's Government to define the field of medical research work to which an annual Parliamentary grant-in-aid is made, and it is in these terms:

" Medical research deals with the proper development and the right use of the human body in all conditions of activity and environment, as well as with its protection from disease and accident, and its repair."

Let us take each phrase of this definition in turn.

DEVELOPMENT OF THE HUMAN BODY

Here we have to consider both nature and nurture, both inheritance and nutrition. Dangerous as it is in scientific studies to separate these sharply in our minds, as is so often done, each nevertheless is served by a special scientific discipline. One is served by the science of genetics and the other by the science of nutrition. The science of genetics is still in its first infancy. By an easy effort of imagination we can form almost illimitable hopes of betterment in body and mind that fuller knowledge in this subject may hold out to the human race. Dreams of this are so attractive and may be so vivid as to tempt us to proposing short cuts to make them real. Hasty practical proposals made in the name of what is called " eugenics " are put forward. Many of these are based on obviously false assumptions, as, for instance, that particular parts of the community are not desirable breeding stock merely because at present they are inadequately fed ; or, again, that the qualities which make many men rich are the qualities which we should desire to multiply in our race. Quite apart from witless social prejudices of that kind, the very machinery proposed for attaining the results desired has often no basis at all in scientific knowledge. Yet in this field some of our highest hopes for man's future must still reside. We have evidence already that the knowledge we have gained of the laws and machinery of inheritance in the lower animals holds good for man. Small beginnings are being made already by the studies of selected pedigrees, the use of probability laws, the examination of correlations between characters, either directly observable or detectable by refined methods of blood examination—all these give growing hopes of our being able to map out the distribution of factors in the human chromosomes, those minute carriers of inheritance in the parent cells. Medical knowledge has a leading part to play here, for the most hopeful clues now in sight depend upon a closer medical study of the inheritance of disease and abnormalities in family history. We are in practice cut off from the method of experimental mating in the study of human inheritance and must perforce use the methods of medical observation and analysis of pedigrees. The work in sight is vast and may occupy many generations. All the more important then that it should begin early. There is no short cut to the power for human welfare that we hope some day to gain by genetic knowledge. The only road to this has to be cleared up by persistent effort in this primary branch of medical research.

The other side of the study of the development of man's body, that of nurture, lies in the field of nutrition, and here there is a very different story. This study is concerned in part with the quantitative study of the energy requirements of the body and in part with the qualitative values of diet. It has only been part of exact science for the last generation or two. Our knowledge upon the qualitative side, even of the very existence of the vitamins, belongs only to the last twenty years. Yet from the knowledge so far won in this field we have already gained practical powers of high value. I will return presently to this subject of nutrition to illustrate in more detail the value and interest of this part of the medical field.

RIGHT USE OF THE BODY

Pursuing our definition we now come, after dealing with the development of the body, to the problems of its right use—its right use in all conditions of activity and environment. Here we deal with problems of personal hygiene, of sleep, of diet in relation to climate, and to bodily activity. We have to deal also with an intricate group of problems belonging to industrial life. The industrial revolution and the introduction of machinery upon a great scale brought a host of new problems under this head. Individual craftsmen throughout the ages have found for themselves their own ways of working to the best effect, and of making the compromises needed for gaining the best output with the least fatigue and damage to health. The introduction of machinery and the gathering of workers into large factories came about, as we all know, with far too much regard to the welfare of the machinery and the magnitude of its output, and with far too little regard to the machinery of the bodies of the workers. The application of physiological knowledge in this field has been lamentably slow in coming. Most of the elementary problems of maintaining efficiency in work and of the spells of rest needed for particular occupations of many kinds have been studied only within the present generation, after almost a century of waste, discomfort, and misery.

The great war brought home to us our ignorance of this branch of medical study, though no other country had greater incentive, both in duty and in profit, to lead the way in its development. When the safety of our people depended upon the fullest output of war material and the maintained efficiency of the workers, it was found that we were ignorant as a nation of some of the most elementary laws of industrial health. We had to find and apply as best we could the optimum hours of work and the best use of rest pauses for different kinds of work, ranging from heavy physical labour to light manipulative tasks involving maintained attention to rapid machine processes. When the lives of men, or indeed of armies, might depend upon the rapid use of the spade in trench warfare, it was found that nobody since Adam first used a spade had worked out the optimum rest pauses for the best performance of a gang of men digging over different periods. Medical research had also to find new safeguards for men

* Friday evening Discourse at the Royal Institution of Great Britain, May 27th, 1932.

living in submarines below the sea, mining far into the earth, or flying to great heights in the air. During and since the war a great volume of research work has been done under the Industrial Health Research Board to clear up these problems connected with the right use of the human body. They deal with hours of work (heavy or light), rest pauses, shift systems, the problems of monotony in repetitive work. They have dealt with the human factor in the causation of accidents, with problems of ventilation, of lighting and heating, with all the special problems of vocational guidance and selection, with the study of body movements, posture, and physique in particular industrial processes, as well as with the special dangers arising from poisonous materials in particular trades or occupations.

PROTECTION OF THE BODY FROM DISEASE

Here we come for the first time to what is ordinarily thought of as medical work in its narrow sense. This part of the work falls, of course, at once under two main divisions. There is the work of preventing disease, and there is the work of curing or palliating disease when already present.

We can hardly think, and have no reason to think, of disease as being caused otherwise than in one of three ways. There are diseases due to abnormalities of structure or chemical behaviour which are inherited and come from the genetic history of the individual. There are other diseases which are due to faults in the immediate environment of the body—early or late in its development—such as those, for instance, known to be the result of imperfect nutrition. Lastly, there is a great variety of disease due to the direct attack upon the body by other forms of life in the shape of parasitic enemies.

We can aim at preventing inherited disease by increasing our knowledge of genetics and by regulating human mating. It will be very long before we have knowledge enough to gain much power in this direction, and how far we can use it when gained will depend upon our political structure and social habits. Already our genetic knowledge is enough to allow us to abolish at once one type of juvenile idiocy, and greatly reduce other mental defects by regulation of marriages in the families displaying them. Many diseases of environment are under our potential control already. Diseases like scurvy, beri-beri, rickets, pellagra, are due to deficiencies of particular vitamins in the food. No doubt other abnormalities of body, including forms of mental weakness, will be found to be due to similar deficiencies, either in childhood or during embryonic life; and we know already, though not yet in enough detail, that deficiencies in diet diminish the resistance of the body to infective disease.

Lastly, we come to the great welter of disorders produced by the actual presence within the body of enemy parasites. These may be multicellular animals such as parasitic worms, unicellular forms such as the trypanosome of sleeping sickness or the plasmodium of malaria; they may be bacteria, as in the infections of typhoid fever and pneumonia, or they may be minute bodies, barely visible by ordinary microscopes, which are the so-called "viruses" causing diseases such as small-pox, measles, yellow fever, and so on. The study of these hosts and of the parasites themselves has been the work of zoologists in the field and in the laboratory, while the study of bacteria is a science by itself, with its specialized technical methods. The knowledge gained here has already given us great powers in the prevention of disease, and an important part of the medical profession is devoted to their use in administration. I would only note here how random seems to be the relation of knowledge to power within this complex field. A very little knowledge of the infective agent concerned may give almost complete powers of prevention. We have the full power of preventing small-pox in any given man or of distemper in any given dog, yet know much less about the nature of those viruses than about that of any other of the groups I have named. In malaria, on the other hand, we have a great deal of knowledge about the life-history of the parasite and its mode of conveyance by the mosquito from man to man. We have the power of freeing any given community from the disease, but only if we have money enough to break the chain of events by getting rid of the mosquito carrier. We had this knowledge and this power a generation ago, yet there is more malaria in the world now than then, and it afflicts with its curse probably a third of the whole human race, with a death rate of two million persons a year. What is needed now is still more intensive research work that will allow us a more ingenious attack upon the parasite by methods which it may be practicable to use upon an immense scale at reasonable cost.

So much for preventive research. But protection from disease involves also its curative or palliative treatment. Here we come, and, as you will notice, for the first time, to the work of the medical profession as ordinarily understood, whether that of the physician or of the surgeon. When disease is beginning or has been established the doctor is concerned to give his help in the most effective way to the single individual before him. This offers him an intricate set of problems which make his work a special branch of applied science in which high arts of skill are based upon the knowledge available. He cannot act effectively till he has found, not only the nature of the disorder present, but its particular manifestations in that individual case. The very fact that he must avoid opening the body to look inside it has led to the development of intricate devices for observing and deducing the actual facts from the outside. I need not do more than point to the high responsibilities undertaken by the physician or surgeon to whom a human life is entrusted. At every point their knowledge and skill depend upon the results of research work of many kinds, and their powers can only advance as research work progresses.

PROTECTION FROM ACCIDENT: REPAIR

Lastly, there remains to consider, in the definition I am following, the protection of the body from accident, and its repair. The study of accidents has led to much profitable research work, of which some of the chief has been done under the Industrial Health Research Board. Accidents can be sorted out into those due to the unfitness of particular workers for given tasks, or to states of mind, or to conditions of fatigue and other states of the body, or, again, to the absence of proper protective devices and administrative rules. When their causation is accurately found, preventive work is at once rightly guided. Under this last head, too, there is the skilled work of the surgeon in repairing physical damage done to the body. But we can only point to this here as completing our rapid survey of the whole campaign in the medical field. I would, however, note how, in coming to the end of this general story, we find ourselves close to the beginning of it again. Surgery has brought us near to the study of heredity again with which we started. For uncounted centuries the surgeon has repaired so far as possible the injuries of man's body in warfare and accident, and his chief concern has always been at least to prevent death by loss of blood. There is no more ancient surgical problem than that of whether a healthy man can lend some of his blood to save the life of another. Nearly three hundred years ago Dr. Lower of Oxford showed to King Charles II and the early Royal Society that one dog's blood might be transfused into another dog to

replace its own. But it has only been in the last twenty years that we have learned why it is that, while the blood of one man given to a patient who has suffered loss by bleeding may be fatal, that of another man may have no ill effects and may restore life. Happily that knowledge came in time to save many thousands of lives in the war. Careful laboratory studies have shown that every human being belongs to one of four groups, distinguished by the different precipitating powers of their bloods, one against another. These subtle blood differences, far more subtle than any chemical analysis could detect, are of daily importance in surgery. They play a part also now in the study of human inheritance with which we began this survey.

MEDICAL RESEARCH AND THE PRIMARY SCIENCES

In this outline I have tried to show the wide sweep and scope of the group of studies properly called medical research. In spite of the widely scattered fields over which it ranges, this work is joined in an organic unity because it has ultimate reference always to the nature and the needs of the living human body. At almost every point we find interrelations between one part of the work and another, and between the various groups of workers in this extended army. While it is served, of course, by the medical sciences—physiology, pathology, bacteriology—it calls in increasing degree for intensive studies in the more primary sciences of chemistry and physics. Medicine, in fact, using the word in a wide sense, is already being served by a great army of workers, of which a large and increasing number may have no medical degrees and no direct relation to the medical profession.

The Vitamins

Let me now give one or two instances of the manner in which medical research draws upon intensive studies in the primary sciences. When the Medical Research Council began its work eighteen years ago, then, and indeed for some years later, rickets was regarded by many of the best authorities in Europe as a chronic infective disease of which the infective agent was unidentified. It was called on the Continent the "English disease" because it was first described here and because of its abundance in our smoky cities. Before the war it was estimated that in our cities at least one child in every three had obvious signs of rickets. Dr. Mellanby discovered, by laborious experimental work, that rickets was simply a deficiency disease due to the lack in the food of a particular constituent, now called vitamin D. The proper supply of this prevented rickets or rapidly cured rickets already present. Familiar now as this is even to laymen, it was greeted at first and for some years by much scepticism in many medical circles.

This discovery has led on to a remarkable series of developments. It had been found that sunshine upon the body also prevented or cured rickets, that it was the short ultra-violet rays that had this action, and that it could also be produced by artificial light. But these rays cannot penetrate more than a tiny thickness of skin, and their action must therefore be upon something at or very near the surface. Were the rays producing vitamin D from something on the skin surface? The vitamin was known to be associated with fats; it was an obvious guess that the light might produce it from the protective grease secreted upon the skin surface. A chief constituent of this is a fat called cholesterol. A loud cry from what had now become an international pack of hounds announced that this was the right line, and that irradiation of cholesterol gave vitamin D. But almost at once a more sagacious hound (if I may continue that impertinent metaphor for Dr. Rosenheim at the National Institute for Medical Research) found with Mr. Webster that it was not cholesterol itself that gave this result, but a related substance present with it in much smaller quantities. This, after exchange of results and ideas with Professor Windaus of Göttingen, was identified as a sterol called ergosterol, previously known only as the characteristic sterol of certain fungi and of yeast. Now the problem became one for intensive study by physicists, organic chemists, and biologists working in intimate collaboration. A team of this kind, working under the general leadership of Dr. Bourdillon at the National Institute, obtained a crystalline substance of very high antirachitic activity by the physical process of distillation in a high vacuum; and another team, under Professor Windaus in Germany, obtained a very similar substance by a selective chemical reaction. Both of these, however, proved to be compounds of the vitamin with inert substances; and Dr. Callow of the Hampstead group found a method of separating the vitamin from either as a crystalline ester, from which the pure vitamin can be liberated. It proves to be itself a sterol, differing from the parent ergosterol only in a detail of the structural arrangement of its atoms, and it has been given the chemical name "calciferol." In pure form this has almost incredible biological potency. A single ounce of it would suffice to give a full daily ration for a million growing children.

It is to be noted that this devotion of physicists and chemists to a medical problem has done more than assist medical knowledge. It has yielded new additions to both physical and chemical methods. A new form of photo-electric microphotometer which multiplied fivefold the speed of observations was produced in its course, together with a new type of spectrograph. Important new contributions have been made and are still being made to our knowledge of the pure chemistry of the group of sterol compounds. In deciding between alternative possibilities of structure for these complex molecules the chemist is becoming more and more dependent on the physicist, for measurements made by the methods of x-ray analysis which science owes to Sir William Bragg. Now this progressive work is not only a clever physico-chemical exploration of academic interest. The results of this intensive laboratory work assume at once a direct bearing upon the practical needs of the community. Accurate knowledge of the vitamin allows adequate standardization of its amount in different foodstuffs in terms of a fixed standard of reference. Its artificial production, moreover, brings into action, or should bring into action, the medical administrator, who should be concerned to see that so long as social or economic factors maintain, as they do, an effective shortage of the natural sources of the vitamin among our city populations, a supply of it by means of the new methods we now have at command shall be made available for every growing child and every child-bearing mother in the country. There still remains for study the attractive physico-chemical problem of how it is exactly that this calciferol molecule exerts its special influence upon the living cells of the intestinal walls, and exactly why, without it, they cannot do their work of effecting the passage of calcium salts into the blood from the food, but not back again. Of this we now know almost nothing. Here our task is to attempt further steps towards better knowledge of the mysterious microcosm of the living cell substance.

Other fascinating vistas are in sight. Only in the last few weeks workers in the physico-chemical laboratory at Cambridge have found some evidence that the action of particular wave-lengths of light in developing vitamin D from its precursor substance may not be, as we had been thinking, an isolated phenomenon. They have obtained some indications that just as for this, so in the case of

two other vitamins—each in its own way indispensable for animal life—particular wave-lengths of light may produce the vitamin from its precursor, while other wave-lengths close to them destroy it. What we know already of the chemistry of the vitamins having these special relations to light shows that they belong to widely different types of chemical compounds. If the indications just given should be confirmed, it will seem to be, so to speak, more than a mere coincidence that in two or three different directions at least the animal cell has come to be vitally dependent upon different individual chemical substances, of which each has these remarkable photochemical properties. We should have to consider that we have here perhaps taken our first steps towards knowledge of a phase of evolutionary development that has not been dreamed of hitherto, a development made manifest in a highly specialized and detailed adaptation of living matter to its age-long environment of light.

The Viruses

In quite another direction the growing demands of medical research for intensive physico-chemical studies may be illustrated. Among the varieties of parasitic life that infest the animal body I mentioned the so-called viruses that cause devastating diseases in man, in animals, and in plants. The loss they cause in life and in money has a magnitude almost beyond calculation. They cause small-pox, measles, infantile paralysis, and many other diseases in man. They cause foot-and-mouth disease of cattle, swine fever, fowl-pox, and other devastating plagues in animals. They cause ruinous diseases in vegetable crops of many kinds, from potatoes here to bananas in the Tropics. They are called "viruses" at present because that commits us to no decision as to their nature. What do we know about them? In a fluid containing them they can be shown to be freely suspended and particulate bodies, for the fluid can be freed from them by rapidly spinning it in a tube so that the particles are driven to one end of it. The bacteria themselves vary widely in size as animals do. None of them can be seen without a magnifying glass, and taking the largest as enlarged to the size of a horse the smallest would then be represented by a mouse, and would be near the extreme limit of our highest powers of direct microscopical vision. The viruses are so small, however, that they pass through porcelain filters that retain all bacteria, and they are just upon or beyond the borderline of direct vision by ordinary microscopical means. Here again medical research has had to call for the intensive application of new physical methods of study. By using the shorter wave-lengths of ultra-violet light the limits of clear microscopical vision can be extended, though this involves using quartz instead of glass throughout the optical apparatus, and obtaining photographic images instead of using direct vision by the eye. It is desirable to photograph the virus bodies in their natural state undisturbed by chemical agents or by stains, which by coating their surface alter their apparent size. These methods are already being successfully applied at Hampstead by Mr. Barnard, who has been foremost in developing them. Another physical problem has been to devise suitable filters with apertures of known size and uniformity, so that the different viruses may be graded in order of magnitude, and the work separating them in the laboratory made constant and accurate. This problem has been largely solved already by Mr. Elford, also at the National Institute, who has found how to produce accurately graded and uniform filters by making collodion films under precisely controlled conditions.

Many of the known viruses have already been arranged in an order of size, and the results gained by optical and filtering methods, which are constant, agree closely where they can be compared. They show that the viruses vary in size nearly as widely as the bacteria do. The largest are close in size to the smallest bacteria, and they descend to the virus of foot-and-mouth disease, of which the particles are little larger than the colloidal aggregates of oxyhaemoglobin in solution. There is probably not room in each particle for more than two or three hundred protein molecules. They can be present in immense number, and yet very few of them are enough to carry full potency. The fluid from a case of foot-and-mouth disease can be diluted ten million times, and yet be potent to reproduce the disease. There are many reasons for considering the viruses to be the smallest forms of life and for allowing them to be living organisms. But there are many unsolved difficulties here. The particles are far smaller than the simplest living cells which have hitherto been regarded as the smallest organizations of living matter endowed with specific character and the power of self-production. It is not certain that viruses can multiply outside a living animal or plant cell: inside it they may multiply with such rapidity as to make it tempting to think that the new particles are being formed, not by the growth and a doubling subdivision of their own substance, but directly, and by some more rapid transformation of matter, out of the substance itself of the living cell containing them. In other words, it may perhaps be as true to say that the disease causes the virus as that the virus causes the disease.

Here again we notice how great is the intellectual interest offered to the physico-chemical student, quite apart from any incentive given by the gigantic practical benefits that will certainly be the reward of successful work in this field. It may be that in the study of these minute forms we are destined to find new clues to some of the most fundamental properties of living matter and to express them in terms of physics and chemistry. It is perhaps just as likely that we may find ourselves able instead only to express physics and chemistry at this point in terms of life. It is obviously most urgently desirable that we should increase our knowledge of these tiny forms and the laws of their behaviour as rapidly and fully as possible, if only with the direct utilitarian object of protecting the life and property they attack upon such an immense scale. We have to remember, aoo, that beyond a doubt some forms at least of malignant disease can be propagated by minute particles of matter which have all the known characters of the viruses. That being so, it is hard not to believe that the right clue to the problem of cancer lies here, and it is in fact being devotedly pursued from that point of view.

I might give many other instances of the great refinements now attained in many directions of biological and medical work. For study of the electrical changes in rapid muscular movement the physiologist Einthoven introduced the string galvanometer, which has been so useful in the hands of Sir Thomas Lewis and others in recording and analysing the successive events in the beat of the heart, normal or disordered. This instrument has passed as a contribution from biology to the regular uses of the physical laboratory. New devices of amplification by the physicists, on the other hand, have allowed Dr. Matthews at Cambridge to follow and measure the curve of electric change due to the passage of an impulse along a single nerve fibre, while Professor E. D. Adrian there obtains an audible record by a loud-speaker of the impulse, for instance, which passes along the optic nerve of a fish when a brief shadow flits across its retina. Professor A. V. Hill follows the course of the heat changes due to the train of transient and minute chemical changes in nerve fibres that propagate the nervous impulse, and measures them with an accuracy expressed in millionths of a temperature degree. The biologist, if given two

samples of crystallized egg albumen from the eggs of a duck and hen respectively, can tell, by means of a biological test, which of them comes from which bird with great rapidity and certainty, though the detection depends on a subtle difference of molecular pattern far beyond the reach of any analysis by the chemist. Dr. Todd at Hampstead, again, has shown that the interactions of the blood between fowl and fowl can be so used as to enable the biologist, if he desires it, to identify any given hen and its family from any other hen in the world. No organic chemist has ever dreamed of performing in such subtlety as that.

THE DIVORCE BETWEEN PHYSICAL AND BIOLOGICAL SCIENCES

I hope I have said enough to show how extensive, varied, attractive, useful, and promising are the fields of medical research and how plainly they call for the application of every kind of trained ability. Medical progress, however, is greatly hampered by various circumstances that keep from its services many of the able men who are best fitted to enjoy giving their life-work to advancing it. One of the most serious of these is the unfortunate and harmful tendency, both in the schools and in the universities, to segregate physicists and chemists on the one hand from biologists on the other. At the schools this is largely the result of the scholarship system. It is found easier to cram clever boys along narrow specialist lines in physics and chemistry for scholarships at the universities, while the universities have never taken effective action so to use the scholarship system as to secure a well-balanced scientific education for scholarship candidates. As regards Oxford and Cambridge, the two wealthiest universities, the effective power in this matter lies in the hands of the individual colleges, who encourage narrow specialism in their competition for the abler boys. The result is twofold. The cleverer boys are diverted from biology, while the biologists, if any, must give up proper training in the physical subjects and themselves specialize narrowly if they are to have any chance of scholarship success. The system of university examinations at both Oxford and Cambridge encourages still further this segregation of the sciences, and at Cambridge changes in regulation during the last twenty years have made the position worse rather than better. These are not only personal views drawn from my own experience. The same opinions have been strongly expressed by Lord Chelmsford's Committee, appointed in 1930 by the Prime Minister to consider the obstacles which stand in the way of the education and supply of biologists for work in this country and over-seas.*

I must not enter further upon this educational question now. I want only to urge here that the general cause of medical research suffers greatly from the present wide and unnecessary divorce, during the earliest stages of education and onwards, between those taught on the physical side and those upon the biological side. It is wholly indefensible on any ground that schoolboys and undergraduates who have special aptitudes for physical inquiry should be confined by a faulty system to the study of non-living matter only. The problems of the living cell are at least as attractive to a keen mind as those of dead matter, and they demand perhaps greater, rather than less, manipulative and analytical skill, because of the instability of the living substance that is studied. Medicine has always been the mother of sciences, and we may remember that it was from the body of medicine—namely, from the schools of physiology and not from schools of organic chemistry—that biochemistry was born and developed as an organized university discipline. It has been found, indeed, as the results of experience that the man trained narrowly in organic chemistry does not in general make the best biochemist. Without earlier acquaintance with the problems of living things he is less likely to break new ground than the biologist starting far behind him in purely chemical equipment. There is pressing need now for a parallel development of biophysics, not necessarily, or even desirably, as a separate discipline, but by a breaking down of the artificial educational barriers between physics and physiology, barriers so unworthy of the Greek spirit of which those very names remind us. I must not stay to speak of still another set of conditions that handicap medical progress. Of those biologists who pass on to hospital work and the study of disease as such, many who are among the fittest to make new knowledge in the sphere of clinical medicine are tempted to turn aside from the arduous path of new investigation, either because of the absorbing human interest of professional work or, again, because of their financial needs or desires.

The mastery over dead matter which physical science has given us has transformed all the conditions of human life within a century, but the conveniences offered by improved transport and improved communications have brought only superficial changes, and it is doubtful whether they have done on the whole greater service or disservice to the happiness and well-being of mankind. Our improved powers of producing wealth, as the whole world is now observing, seem already to have outrun lamentably our powers either of wisely using or even of retaining it. It is better mastery over living matter and the improvement of the bodily and mental powers of man that are needed for the real betterment and enrichment of the race. By powers of a kind that we are already in process of gaining through medical research we may hope to transform human life in ways almost unimagined now and to make a new world indeed. Without entering into dreams of the far future we know that here and now the campaign of medical research is improving our estate. Its progress and success have immediate interest for all of us and the highest claims upon the good will of all mankind. It is a campaign to diminish pain, to lessen the waste of human effort and human life, and to enrich and enlarge the powers of the human body and mind.

* Report of Committee on Education and Supply of Biologists. Stationery Office Publication, 63-75. 1932. (1s.)

CANCER OF THE BREAST

*X-RAY AND RADIUM TREATMENT OF OPERABLE AND BORDERLINE CASES**

BY

J. H. DOUGLAS WEBSTER, M.D., F.R.C.P.ED.

(From the Radiological Department, Middlesex Hospital)

In 1926, before the First Congress of Radiology, I presented a communication[12] on fifteen cases of operable cancer of the breast treated with radium or *x* rays. It may be useful to summarize further work and results in this line of cancer treatment, with forty-one operable and borderline cases, and to give the results with 358 post-operative patients.

GENERAL CONSIDERATIONS

The clinical and histological types of breast cancer are so variable that under this site heading we group rather a series of different diseases than one "disease." This variety makes it very difficult to arrive at precise conclusions on the subject as a whole. In particular, the value of statistical records is always, to some degree, indefinite, as so much depends on the percentages of the different groups, clinical and histological, included in any

* Read at the Third International Congress of Radiology, Paris, 1931.

summary report. Further, the cases of "recurrence" ten to twenty years after operation suggest that there may be a "resting stage" of the breast cancer cell about which little or nothing is known. Again, surgeons have no generally uniform standard of operability, by which "operable" and "borderline" cases may be graded. Some surgeons have come to regard the presence of large, fixed, or any axillary glands as a contraindication to operation, whereas others operate even in the presence of skin nodules and supraclavicular glands, or perform "palliative" operations on ulcerated cases, regarding "removable" as synonymous with "operable." The Steinthal grading, or its modifications, is the most useful.

Patients operated on early in Stage I show a high percentage of success, but in Stage I as a whole, and in the "operable" group, Stages I and II, there is a very considerable percentage of recurrences within the first few years, showing that a large number of incomplete operations are performed. Thirty years ago Sir John Bland-Sutton suggested what an unscientific word "recurrence" was—a "false term" he calls it.[1] The word is a mere euphemism for "incomplete operation" in the vast majority of cases: it may be used to pacify the patient, but should not be allowed to lull the surgeon or practitioner into contentment with imperfect work, or prevent the adoption of auxiliary or alternative radiological means whereby the results may be improved. The average five-year surgical "cure" of breast cancer in Stage I and II "operable" groups varies from under 12 per cent. to over 30 per cent., the average of many statistics being about 22 per cent. In a series of eighty-seven primary cases Lee[8] found a 15 per cent. five-year "cure," and only one patient who had had axillary gland invasion survived this period.

Ewing[3] holds that there is probably only a one in twenty-five chance of a patient's life being saved by operation alone where there is palpable axillary gland invasion. Giant serial sections have shown that even in apparently early cases there may be widespread invasion throughout the breast; and invasion of the lymphatics crossing the first rib with the axillary vein has been found even when the axillary glands have not been enlarged.[2] Such histological findings help us to understand the relative frequency of inadequate operation, and the urgent need there is for exploring the value of auxiliary or alternative radiological methods of treatment.

Results in Post-operative Series

The results in my post-operative series of 358 cases show that the average operation recovery rate can be doubled with a post-operative *x*-ray course, given with a medium-voltage technique. A total of 182 patients have been observed for five or more years, and the "cure" rate is 42 per cent.; of those observed for three years the rate is 47 per cent.[12] Three-quarters of these patients were in Stage II at operation; some were in Stage III. The results vary with different surgeons—a three-year survey of Mr. Gordon Taylor's patients showed a 56 per cent. success. A considerable number of cases were so advanced at the time of operation that they were only able to come for one or two *x*-ray treatments, and then they were incapacitated with chest or other internal metastases. That the unselected results were 42 per cent. at five years, with the relatively advanced material of this series, shows conclusively, I believe, that the recovery rate may be practically doubled by a suitable post-operative *x*-ray course. (Compare figures from Radiumhemmet, Stockholm: 37 per cent. post-operative, and 50 per cent. pre- and post-operative, five-year results.[13])

Histological proof of the effect of *x*-ray treatment has been afforded by study in collaboration with Mr. David H. Patey, of several patients with early recurrent skin nodules. In a small group of skin nodules one or more was shielded from the rays with sheet lead, the group then being radiated. After varying periods of days the group as a whole was excised and sections were cut (the sites of all nodules were tattooed on the skin beforehand). Lantern slides were shown from sections of a shielded control nodule, and a nodule which had almost completely disappeared fourteen days after a moderate erythema dose had been given (180 kV 0.5 mm. Zn + 1 mm. Al) (660 *r*). This was a more undifferentiated type of cancer showing almost complete regression already in fourteen days; more tubular types, our observations suggest, react more slowly. Many clinical observations of regression after external radiation, taken with such histological findings as these, make of doubtful value the opinion of those who consider six to ten "erythema doses" necessary for the cure of breast cancer.

Patients in whom slight early recurrences were found were immediately treated with high-voltage *x* rays, or in some instances with surface or interstitial radium. In the great majority of cases these earliest recurrences regress completely with prompt treatment: it is otherwise with established recurrences, which are usually not so responsive.

I am strongly in favour of pre-operative *x*-ray treatment. It would seem obvious that a treatment which can cure a considerable proportion of recurrences should help to sterilize the whole field of operation, when it has been given two to four weeks before operation, and the percentage of recurrences should be lessened. Lee[9] has given some figures which point strongly to its value. I have had, however, only about ten cases of varying types—too small a number for conclusions. Several borderline cases have been rendered operable—some of these with such satisfying results that operation has been refrained from. Others have been operated on, several with good results, some with rapid development of secondaries. Thus the value of operation in borderline cases is still largely undetermined.

As in no given patient can one be sure that operation will not be, or has not been, incomplete, the ideal, where operation is projected, would appear to be association of operation with pre- and post-operative *x*-ray courses of treatment.

Radiation as a Substitute in Operable Cases

As an alternative to operation, selected cases of operable and borderline breast cancer may be treated with *x* rays or radium, or both. The fifteen cases reported on six years ago have now grown to forty-one. Most of these had refused operation, or were considered unsuitable subjects for it. But not many were strictly "operable," the majority, indeed, being "inoperable" owing to extreme age, debility, or cardiac or pulmonary disease, or the breast itself being in a "borderline" stage, or too advanced for operation as judged by strict standards. The good results of operable and borderline patients followed up for five years are almost similar for those treated with *x* rays and external radium—namely, 70 per cent. for those with *x* rays, and 60 per cent. with radium—66 per cent. as a whole—ten out of fifteen cases in all. The numbers are few, but they confirm similar results of Pfahler[11] (87 per cent. in twenty-seven cases), Lee[10] (50 per cent. in sixty-eight cases) and Wintz[14] (48 per cent. in thirty-five cases)—all five-year results in operable cases. Almost every case in the present series showed at one time or other, apart from definite breast signs, either skin nodules, or axillary or supraclavicular gland enlargement. No early "mastitis" cases are included, as these are considered later separately.

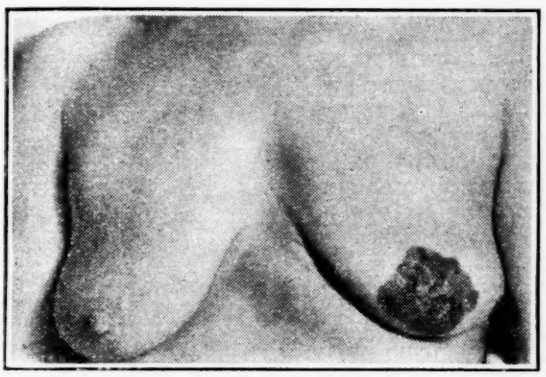
No case failed to show at least temporary local improvement. In many patients the result has been clinical

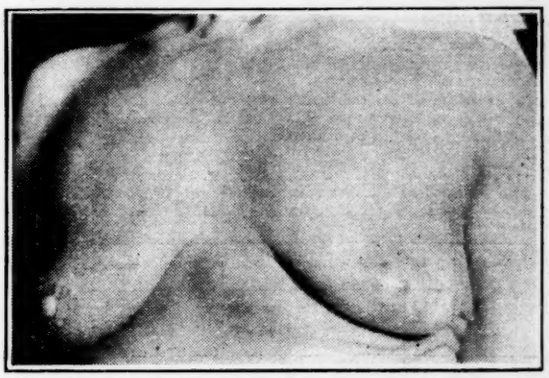
regression of the primary mass to a small "residue," while in some patients the mass has disappeared. Many of these residues, watched at three-monthly intervals for months or years, have remained quiescent. In a few instances there has been increase in size of a residue, which has necessitated further treatment by radiation or operation, or both. Care should be taken not to damage the skin severely, especially if it is infolded, as fissures which readily become septic may result, and the inflammatory process, spreading to the residue behind, has appeared in one or two instances to have stimulated this residue to activity years after apparent quiescence. Early local mastectomy is to be advised in such instances.

Only one patient in this series showed signs of lung induration after high-voltage *x*-ray treatment: in this instance the breast had been cross-fired, not as usual—3 by 50 per cent., or 2 by 75 per cent.—but 4 by 75 per cent. As a result the right lung showed *x*-ray signs of induration, quiescent clinically. With proper tangential methods[6 7] this complication should not be seen.

MASTITIS CASES

An important aspect of breast cancer treatment by radiation is that of "pre-carcinomatous chronic mastitis."





Breasts so affected range from those with small pea-like nodules in one or more quadrants or lobes to those with solid or cystic masses 4 by 6 cm. or more in size. In ten or more cases (sometimes in the opposite breast to that with a proved carcinoma) the clinical diagnosis of "early carcinoma" was made. There have been eighty of these "mastitis" patients, and the three-year results have been good in seventy-one (88.7 per cent.).[12] Several patients have been operated on for continued neuralgic pain, or for suspicion of malignant change, while one with a very large breast was operated on nearly a year after she had been lost sight of since medium-voltage *x* rays had been stopped, owing to malignant disease. Patients with large breasts would now be treated with high-voltage *x* rays from the first: this also should be the rule where malignant changes are suspected, as, for example, in Paget's disease of the nipple (see illustrations). After two courses of *x*-ray treatment the skin in this patient became normal in appearance and normal histologically. (The patient was referred by Mr. Sampson Handley; the photographs have been reversed in reproduction so that the left breast appears on the right of the figure.) The breast was removed some months later because a small nodule had appeared in the breast above the nipple; this proved to be a pre-carcinomatous hyperplasia, which further *x*-ray treatment would probably have cured. Large masses of solid "mastitis" may rapidly disappear following *x*-ray treatment, though a few cases have proved resistant, one being found to have a fibro-adenoma on operation.

As the patient's consent to operation is not readily given in "mastitis" cases, or in the earliest cancers, this success with external radiation is of the greatest importance from the cancer prevention point of view, and a most valuable feature of radiation therapeutics.

OLD INTERSTITIAL RADIUM CASES

Several patients have been referred for external radiation after incomplete result following interstitial radium. In some of these improvement has been obtained: in several the local condition, one of mixed recurrences and radium dermatitis, precluded any further radiation treatment. As a general rule it may be said that for patients with small breasts the choice of interstitial radium may make this the one and only chance for the patient's life, as failure may render impossible further operation or radiation. It is otherwise after external radiation in not-excessive dosage, for failure then, or an incomplete result, may be followed up by interstitial radium or operation. Several failures after interstitial radium have been seen to be followed by very rapid local or general metastases. This method can as yet show few or no five-year results, and it has to face many theoretical and practical contraindications. It transgresses the established surgical principle of *noli me tangere* for a metastatic type of tumour—it would seem as wrong to insert radium needles into some types of breast cancer as it is to do so into a lymphosarcomatous mass. Further, if short tubes are to be placed near enough so as to avoid leaving imperfectly radiated tracts, forty to sixty tubes may be needed for a large breast and its neighbouring lymphatic areas. As a method it has been tried and abandoned by several surgeons with considerable experience in cancer and radium treatment. In the treatment of "residues" after external radiation, or early resistant recurrences, it may be found valuable in patients who refuse operation, or in whom operation is contraindicated. Its value is doubtful as a primary method of treatment in such a highly metastatic type of cancer as that which may occur in the breast from the beginning, in a given case, or as a result of metaplasia.

CONCLUSIONS

Further advances in the results of breast cancer treatment will come by combining operation with external radiation treatments, pre- and post-operative; or by employing them in selected cases as an alternative to operation:

1. Five-year results following external radiation have been shown to equal the results of, or excel, operation in similar cases.

2. The combination of radiation with operation may double the percentage of five-year surgical "cures."

3. Though medical and surgical opinion has been slow to advance in such directions, I believe, nevertheless, that the words which James Ewing used[4] about eight years ago are true: "On account of the extremely variable anatomical and clinical characters of the disease,

the difficulties of diagnosis, the danger of disseminating the disease by surgical manipulation, the extent of the radical operation, and the frequency of recurrences . . . radiation therapy . . . is destined to replace largely the surgery of mammary cancer."

TABLE I.—*Five-year Results: Breast Cancer. Post-operative X-Ray Treatment (120–140 kV 3 mm. Al Filter). 358 Cases (182 Five-year).*

Treatment Commenced	Cases	Alive	Dead	Five-year
1921	6	2	4	0
1922	52	17	35	3
1923	46	21	25	0
1924	31	10	21	1
1925	47 — 182	19 — 69	28 — 113	4 — 8
1926	34	12	22	—
1927	37	13	19	—
1928	25	14	11	—
1929	33	26	7	—
1930	33	29	4	—
1931 (half-year)	14	14	0	—
Total	358	182	176	8

Five-year Cases.—Total, 182. Alive, 77; dead, 113; percentage cure, 42. Three-year cure = 47 per cent.

Three-quarters of the patients were at Stage II at operation: some were in Stage III: one-third showed early local recurrences during the *x*-ray course, most of which regressed completely with high-voltage *x*-ray or radium treatment.

TABLE II.—*Five-year Results: Breast Cancer. Primary Cases (operable and borderline). X-ray and External Radium Treatment. Forty-one Cases (Fifteen operable and borderline Five-year Results.)*

Treatment Commenced	X Rays				Radium			
	Cases	Alive	Dead	Five-year	Cases	Alive	Dead	Five-year
1917	1	1	—	1	—	—	—	—
1918	—	—	—	—	—	—	—	—
1919	1	—	1	1	—	—	—	—
1920	—	—	—	—	—	—	—	—
1921	1	—	1**	1	2 (1*)	—	2	1
1922	2	—	2**	—	1	—	1	—
1923	—	—	—	—	2 (1*)	1	1	1
1924	2	—	2	1	2	1	1	1
1925	4	3	1	3 — 7	—	—	—	— — 3
1926	4	2	2	—	3 (3*)	—	3	—
1927	3	2	1	—	—	—	—	—
1928	3	2	1	—	—	—	—	—
1929	1	1	—	—	—	—	—	—
1930	3	2	1**	—	1	1	—	—
1931 (half-year)	5	5	—	—	—	—	—	—
Total	30	18	12	7	11	3	8	3

Five-year Cases.—Fifteen operable and borderline cases (ten *x*-ray, five radium). Ten five-year gave good results (70 per cent. *x*-ray, 60 per cent. radium = 66 per cent.). (* = Ulcerated inoperable radium cases.)

Of the *x*-ray cases, one "borderline" is well after fourteen years; three are well at five years; two were recurrent after five years. Three died of intercurrent disease (**), years 1921, 1922, and 1930, of acute pneumonia, acute enteritis, and aortic atheroma: in each case the breast condition was excellent. One case refused further treatment, and has therefore been removed from the list of eleven *x*-ray five-year cases.

Of the radium cases one is well at seven years (she has had, since this paper was read, interstitial radium for a slowly growing recurrence in the anterior axillary fold), one is well at six years, one was recurrent after five years. In 1924–5 the half-gram of radium was made the nucleus of a radon centre, and mass surface research was therefore discontinued.

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ALLERGIC CONDITIONS OF THE NOSE

BY

J. ARNOLD JONES, O.B.E., M.B., F.R.C.S.ED.

SURGEON, ST. JOHN'S EAR AND THROAT HOSPITAL, MANCHESTER; SURGEON, EAR, NOSE, AND THROAT DEPARTMENT, ROYAL MANCHESTER CHILDREN'S HOSPITAL

Up to a few years ago those nasal conditions which have been variously termed "vasomotor rhinitis," "spasmodic rhinitis," "paroxysmal rhinorrhoea," "hay fever," etc., were grouped under the heading of "nasal neuroses." Similarly, certain symptoms which were attributable to the lingual tonsil were also classified as neuroses. These conditions are now regarded as allergic in character, and are closely allied to asthma, urticaria, angioneurotic oedema, etc.

THE ALLERGIC STATE

The allergic state is one in which there is an altered reaction to foreign proteins. In the case of the nose and throat these proteins may reach their objective either through the air or through the blood stream, and there are certain areas which seem to be peculiarly sensitive to protein irritation—in the nose, the tubercle of the septum just opposite the anterior end of the middle turbinal, and the lower border of the inferior turbinal; in the throat, the lingual tonsil area at the base of the tongue. The typical nasal symptoms of the allergic state are intermittent profuse watery discharge combined with obstruction. It differs from cerebro-spinal rhinorrhoea in that the discharge is bilateral, contains mucin, stiffens the handkerchief when dried, and does not reduce Fehling's solution. Paroxysmal sneezing frequently, and asthma sometimes, are associated conditions. During an attack the cavernous spaces of the nasal mucosa (especially over the inferior turbinals) become engorged, causing obstruction; the glandular secretion is enormously increased.

HAY FEVER

Perhaps the most common allergic nasal condition is hay fever. It occurs in this country in May and June, and usually lasts for about six weeks. For the rest of the year the patient is free from symptoms. The offending proteins come from the pollen of various grasses and cereals, which stimulate the sensitive nasal areas in predisposed persons, producing the well-known symptoms of paroxysmal sneezing, profuse watery discharge, and nasal obstruction, often accompanied by conjunctival irritation and headache.

VASOMOTOR RHINITIS

The condition known as vasomotor rhinitis, or spasmodic rhinorrhoea, produces much the same symptoms as hay fever, but it differs from the latter in that it occurs at all

times of the year, may last for considerable periods continuously, and is due, not to the pollen of grasses, but to many and diverse proteins, which may be conveyed by the air or by the blood stream. As in asthma, urticaria, angioneurotic oedema, and other members of the allergic group, it is the varying reactions to large numbers of proteins on the part of different individuals similarly predisposed that form one of the baffling features of the disease. Thus, a protein or proteins which will cause a vasomotor rhinitis in one predisposed person will have no effect in another, although other varieties of proteins will produce in him exactly the same symptoms as in the first case. Again, an individual may have a vasomotor rhinitis due to a definite protein, and in time become immune to that protein ; at the same time he may develop sensitiveness to another variety of protein, so that his symptoms do not abate. The symptoms, then, of a typical vasomotor rhinitis are the same as those of hay fever ; but these symptoms vary in prominence and degree in different subjects. Thus, in some cases sneezing and profuse discharge are the prominent symptoms ; in others, intermittent nasal obstruction with but little discharge.

A characteristic feature of the nasal obstruction in these cases is its alternating character. At one time one nostril will be completely blocked, the other being comparatively free. At another time the position will be reversed, the free nostril becoming blocked and the occluded one free. Sudden changes of temperature, such as emerging from cold air into a warm room, will initiate an attack.

The intranasal appearances vary. If seen during a typical attack there is much swelling of the mucous membrane, especially over the inferior turbinal, and the nostril is sometimes completely occluded. This swelling is elastic when touched by a probe. It can be temporarily reduced by the application of adrenaline. When seen in between attacks the intranasal appearance may be normal. But in more atypical cases the nasal mucosa has permanently a swollen and sodden appearance, with no evidence of an inflammatory reaction. The secretion in typical cases is clear, and so fluid that it is hardly visible in the nose. In others it is much thicker in character, resembling the unboiled white of egg.

Vasomotor rhinitis is often mistaken for catarrh, and so is treated without avail. In certain cases of nasal obstruction and discharge apparently due to adenoids vasomotor rhinitis is also present, so that after an efficient removal of adenoids the symptoms still persist. This is a comparatively rare occurrence, but in every case of nasal discharge and obstruction which persists in spite of treatment directed to the nasopharynx and nasal accessory sinuses vasomotor rhinitis should be thought of and sought for. It will often furnish a reason for the persistence of symptoms which all ordinary treatment has failed to alleviate. Some patients display a mixed condition, chronic nasal suppuration being the major lesion, but accompanied by a certain amount of vasomotor disturbance ; until this latter condition is dealt with symptoms persist. Vasomotor rhinitis is more common than it was thought to be, and in the last few years I have found in it an explanation for many cases of persistent nasal obstruction and discharge—especially in children—which have proved obstinate to ordinary lines of treatment.

THREE MAIN FACTORS OF THE ALLERGIC STATE

Thus it emerges that, so far as our present knowledge goes, three main factors are always present in these allergic conditions: (1) an unknown personal idiosyncrasy sometimes called the exudative diathesis, a diathesis common to such allied conditions as asthma, etc. ; (2) a sensitive condition of the nasal mucosa mainly confined to the areas already mentioned ; and (3) the irritation of proteins conveyed to the sensitive areas externally through the air or internally by the blood stream.

Heredity plays an important part, and frequently a family history of the exudative diathesis can be elicited.

Such nasal pathological conditions as polypi, turbinal hypertrophies, and septal spurs and deviations, are sometimes discovered associated with the allergic state, but they form no part of the state itself. The tubercle of the septum—a small mass of adenoid tissue situated on the septum opposite to the anterior end of the inferior turbinal—is not infrequently definitely enlarged, sometimes attaining the size of a bean. I have noticed this enlargement far more frequently in the allergic state than in all other nasal conditions combined.

TREATMENT

Bearing in mind the three main factors present in the nasal allergic state, it will be seen that our efforts at treatment should be directed against these factors.

Exudative Diathesis

So little is known about this that treatment is largely empirical. On the grounds that the condition was a neurosis (whatever that may mean), such drugs as valerian, bromides, valerianate of zinc, etc., have been freely given with no very satisfactory results. Many years ago, under the influence of Richard Lake, I tried calcium lactate in 5 to 15 grain doses three times a day for prolonged periods, and until recently this proved in my hands the best line of treatment to adopt. Although some results were good, there were many failures. Then, on the hypothesis that endocrine disturbances play their part, and observing the value of adrenaline in asthma, I tried the administration of suprarenal-pituitary tablets, with excellent results in a few cases, and none at all in others ; but on the whole success was more appreciable than with the calcium lactate treatment. In 1929 Mollison[1] advocated the administration of parathyroid and calcium combined, and this I have found to be the best method of dealing with the unknown personal idiosyncrasy. In my experience over 60 per cent. of patients respond well to this line of treatment. It must be carried out for periods of two or three months at a time. For adults I prescribe parathyroid and calcium tablets—one, three times a day, increasing to two, three times a day, with a little water, a quarter of an hour before meals. Each tablet contains 1/40 grain of desiccated gland and 5 grains of calcium lactate. To this form of treatment children respond especially well.

The Nasal Mucosa

The second factor is a sensitive condition of the nasal mucosa, mainly confined to the region of the tubercles of the septum and the anterior portion of the inferior turbinals. By far the best local treatment is cauterization of these sensitive nasal areas by means of the electrocautery under cocaine anaesthesia. Between 60 and 70 per cent. of patients will respond to this form of treatment, even if given alone. In young children, when cocaine anaesthesia is contraindicated, I content myself with applying a 1 in 40 solution of silver nitrate. In all cases I prescribe an oily nasal spray containing thymol and eucalyptol (1 grain and 1 minim in 1 ounce of parolein), to be used two or three times daily from a nasal atomizer.

Protein Sensitivity

The third factor is the irritation of proteins conveyed to the sensitive nasal areas externally through the air or internally by the blood stream. If, in any individual case, the definite protein or proteins at fault could be recognized, the patient would be relieved of his symptoms by the removal of such proteins. In hay fever it is possible to accomplish this by means of a sea voyage.

But in vasomotor rhinitis so many different proteins may cause trouble that it is, at present, almost impossible to identify them in any individual case. The skin tests may be tried, but they do not cover every possible source. In any case, patients' sensitiveness to various proteins changes from time to time. Attention to diet by preventing the access of offending proteins may relieve the symptoms for a time. Treatment of hay fever by pollantin (Dunbar's antitoxin) has in my hands met with no success, nor has desensitization.

SUMMARY OF TREATMENT

If these allergic conditions are accompanied by other nasal pathological manifestations, they should be suitably dealt with. Occasionally an enlarged middle turbinal will be found pressing against the septum ; or, more rarely, the tubercle of the septum will be so large as to form a small tumour on the septum. In these cases surgical intervention is called for. It is now my practice in treating these nasal allergic conditions to combine local and general treatment. In all cases I prescribe the use, two or three times daily, of the oily solution recommended above, and also parathyroid and calcium tablets in doses suitable to the age of the patient. If the intranasal appearances are fairly normal, I await the result of this treatment for two or three months. If any marked intranasal abnormalities are present they are dealt with at once. If the tubercle of the septum is prominent, or if the inferior turbinals are enlarged, I proceed to cauterize at once. At the end of two or three months, if no improvement has taken place, I use the electrocautery to the sensitive areas and change over from the parathyroid and calcium treatment to suprarenal pituitary.

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THE PROGRESS OF INSULIN DIABETICS ON A LIBERAL CARBOHYDRATE DIET

BY

CHARLES S. D. DON, M.D.ABERD., M.R.C.P.LOND.
HONORARY PHYSICIAN, SALFORD ROYAL HOSPITAL

For many years diabetic diets have been composed with a view to curtailing considerably the carbohydrates and to increasing the fat.

The formulae of Woodyatt and of Wilder are based on this underlying principle. However, Allen[1] has found that fat influences the insulin requirement, and Greenwald[2] and others have expressed the opinion that it lowers the carbohydrate tolerance. A high carbohydrate diet was advocated by Sansum,[3] and at a meeting of the Royal Society of Medicine,[4] in 1931, Poulton and other speakers were agreed that a higher carbohydrate diet was desirable, though Lawrence stated that, in his experience, insulin reactions, as a result of the increased insulin dosage, were more frequent. Nixon[5] and Dyke[6] have had satisfactory results, and Richardson[7] was able to increase the carbohydrate at the expense of the fat in patients, and even in a case where the carbohydrate was increased from 57 to 150 grams, and the fat reduced from 150 to 57 grams, there was no necessity to increase the insulin dosage. Himsworth[8] had results of a somewhat similar kind.

THE HIGH CARBOHYDRATE DIET

The diets used with insulin at Salford Royal Hospital have contained a high carbohydrate content for the past six years, the caloric value varying according to the patient's normal weight. A man of average weight receives carbohydrate 165 grams, fat 126, protein 83 ; but some women receive as little as 110 grams of carbohydrate, and a few men as much as 190 grams. I have had the opportunity of observing 171 of these cases in the diabetic clinic after their discharge from hospital, for varying periods up to six years ; these patients attended about once a month, and they were taught to test their own urines at home for sugar, a procedure which made them keep to their diets to a surprising extent. A record of the weight, urinary sugar, blood sugar, and of any reactions was made at each visit, and the insulin increased or decreased as indicated.

INSULIN DOSAGE

For the purposes of assessing the changes in insulin dosage I have taken first the records of 94 cases, which have apparently co-operated, and have attended for at least one year, and, according to whether the daily dose has had to be increased by 8 or more units, or decreased by 8 or more units, the dose of insulin is considered to have been " increased," " stationary," or " decreased," the comparison being made between the first attendances and the last attendances, be it one year's duration or six years'. Some patients showed large variations during the first few months, yet could be classed as stationary after a year's attendance. Of these 94 cases the dose was stationary in 45, decreased in 24, and increased in 25.

Duncan[9] observed 64 cases for two years, and 39 showed a decrease in the insulin dosage, 8 showed an increase, and in 17 it was unchanged. I have followed 61 cases for a period of at least two years—in many cases for five or six years, the average being three years. A comparision of their first and last attendances shows that the dose was stationary in 24 cases, decreased in 17, and increased in 20. Of the 17 cases which showed a decrease, in 16 this decrease had already taken place at the end of the first year's treatment, and at the end of the second year all 17 showed a decrease as compared with the first attendances. Compared with the dose at twelve months, a further decrease had only occurred in 3 cases and an actual increase in 1 case, though the dose is still well below that given at the first attendance. Five of these 17 cases attended for four to six years, but in no case had a further alteration of more than 8 units been made in the day's dosage.

Of the 20 cases labelled " increased," this had occurred in only 7 cases at the end of one year, while at the end of two years a further increase of 8 or more units had occurred in 3 of these, but in only 10 cases was there an increase compared with the first attendances, the remaining 10 cases showing the increase in the course of three to six years. There are only 22 cases which have attended for four to six years, and a comparison of the first and last doses shows that an increase of 8 or more units has occurred in 12, a decrease in 5, while in 5 cases the dose was stationary. I realize that reductions or increases in diet, which patients might make without my knowledge, and other variations (Rabinowitch[10]), may account for all these changes in the dose of insulin.

It was possible in many cases to reduce the injections to once daily, yet in only 19 of the 171 cases which attended the clinic was it possible to stop insulin, and in 8 of these the injections had to be restarted later owing to the reappearance of urinary sugar, but 11 have remained sugar-free up to their last visit. These 11 patients are all over 48 years of age, and the average time before insulin was stopped was six months, in 3 cases the period being one to one and a half years. They were not severe cases, the worst receiving 36 units daily at the start, the average being 20 units. I know of only one patient in the clinic who has been able to stop insulin and resume a normal diet without glycosuria reappearing ; this patient gradually developed cirrhosis of the liver and ascites. Other patients may have been able to stop insulin and resume a normal diet, but simply ceased to attend.

HYPO- AND HYPER-GLYCAEMIA

Insulin reactions are occasionally reported by patients, but, with rare exceptions, they have not been serious, and patients are instructed to reduce the dose at once. Four patients have, however, had hypoglycaemic coma, and in one of these the onset was so rapid that she fell, and a fracture of the olecranon resulted. In one of these cases death resulted, in spite of the fact that on admission to hospital the blood sugar was restored to normal by glucose intravenously. A large dose of insulin had been given before admission, because the case was mistaken for one of hyperglycaemic coma. The patient was a woman of 20 years—a severe diabetic—and a necropsy showed an enlarged thymus, with thymus tissue on section.

Three patients with hyperglycaemia have been re-admitted to the ward in coma, in one case brought on by influenza, in another by an alveolar abscess. Both these recovered, but the third died. Other cases of coma may, however, have been treated at some other hospitals and have continued attending there.

BLOOD PRESSURE

Joslin[11] found the blood pressure to be lower than normal in patients under 35, but above normal after that, and Koopman's[12] view is somewhat similar. Adams[13] found that, although more cases have a systolic blood pressure above 150 than is the case in normal subjects, more cases have a systolic blood pressure under 110 than is seen in normal subjects. In Major's[14] cases the peak of a graph fell between 135 and 150, while in normals it fell between 120 and 135. Katz Klein,[15] Kramer,[16] Bell and Clawson,[17] all found an increased blood pressure to be common. Elliott[18] considered that it was normal, and Nathanson[19] stated that the incidence of hypertensive hypertrophy of the heart at post-mortem indicates that hypertension is only slightly more common in diabetics than in non-diabetics.

I took the blood pressure in 60 patients who have attended over an average period of three years, and still continue, and repeated examination of those with high readings at subsequent visits. There were 32 cases with a systolic pressure above 150 mm. of mercury, or a diastolic above 100 mm., the average being 164 systolic and 96 diastolic. There were 28 cases with a systolic below 150 and a diastolic under 100, the average being 136 systolic and 83 diastolic. A trace of albumin was present in the urine, in 4 cases with a blood pressure over 150 and in 2 with a blood pressure below 150. In 13 cases a moderate amount of sugar was found on the first day the blood pressure was taken, in 10 a small quantity, and in 37 sugar was absent. In 9 of the cases with frank sugar a faint trace of acetone was present. There was no relationship between the glycosuria and the blood pressure, but, of course, it is quite likely that at another visit some of those with glycosuria would be sugar-free. The urine tested was the specimen passed early on that morning, and the chemical findings represent a fair average of the insulin patients as a whole.

These 60 cases on which I took the blood pressure were also examined for evidence of pulmonary tuberculosis. They were *x*-rayed by Dr. H. M. Morris, and in 59 cases the lungs showed no sign of tuberculosis ; in one, however, there was active disease at the right apex. This patient had been attending and having insulin for two and a half years ; he was receiving 50 units daily, and, so far as his blood sugar and urinary tests showed, he kept to his diet. Joslin[20] saw 43 cases of tuberculosis of the lungs in 3,000 cases of diabetes, while Fitz[21] had 35 in 1,529 cases. Tuberculosis before treatment is therefore not uncommon, but I was disappointed to find it developing in a man after two and a half years' treatment, though this may be a coincidence.

CONCLUSIONS

1. The insulin requirements for 61 cases, observed for two to six years on a liberal carbohydrate diet, show that the dose had to be reduced in 17 and increased in 20, while in 24 no change was necessary.
2. It was possible to stop insulin in 19 out of 171 cases, but it had to be restarted in 8.
3. In only one case seen in the clinic was it possible to stop insulin and return to an unrestricted diet. This patient was developing cirrhosis of the liver.
4. The blood pressure in treated cases shows an increase above a systolic pressure of 150 mm., or a diastolic of 100 mm. Hg in 32 out of 60 which have been on insulin for an average period of three years.
5. Insulin reactions occurred occasionally, but rarely gave rise to serious results.

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BONE ABSCESSES DUE TO BRUCELLA MELITENSIS

BY

A. D. GARDNER, D.M.OXON.,

G. R. GIRDLESTONE, F.R.C.S.,

AND

N. A. GILLESPIE, B.M.OXON.

The occurrence of arthropathies and hydrarthroses complicating Mediterranean fever has been extensively noted in the medical press. Bone lesions proper have been reported, but very little stressed. In the Iowa series of 375 cases Hardy[1] quotes 32 per cent. arthropathies, one case of hydrarthrosis, and one case which was operated on for osteomyelitis, and in which pus was found. In the Ohio series of 175 cases, Simpson[2] finds 31 per cent. arthropathies. Baker[3] has reported a very interesting case of intermittent hydrarthrosis, in which the hydrarthrosis recurred at regular intervals over a period of five months, seventeen years after the initial *Br. melitensis* infection. More recently Professor S. Weil[4] has reported a case of hydrarthrosis of the foot due to Malta fever, pointing out that this may occur either during the febrile period or long after its resolution. By way of comparison it is interesting to find Zdrodowski[5] quoting 17.5 per cent. bone or joint lesions occurring in guinea-pigs experimentally inoculated with *Br. abortus*. A case has also been reported from Barcelona[6] in which a spontaneous fracture occurred as a sequel to a *Br. melitensis* infection. Most of these authors appear to agree that it is rare for these bone and joint lesions to leave permanent disability.

As little has been published on this subject in British medical literature, it is thought that this case may be of interest, since here osteitis and hydrarthrosis coexist in the same patient.

HISTORY OF CASE

The patient, aged 25, had served for three years in India, and then for fourteen months in the Somaliland Camel Corps. On November 1st, 1931, during his return home on leave, he experienced pains in his foot. He developed periosteal abscesses of his left tibia and of a rib, and his right knee became swollen and painful.

He was examined here on December 1st, when a stereoscopic *x*-ray photograph suggested a small focus in front of the tibial spine. The knee was immobilized in plaster; the abscess round the eighth left costo-sternal junction was aspirated and pus withdrawn. This was found to contain no tubercle bacilli, but in cultures on plain agar and blood-agar some colonies of a small Gram-negative bacillus appeared. Some days later this was identified by cultural and serological tests as *Br. melitensis*. On December 9th the knee-joint was aspirated, and two ounces of opalescent, straw-coloured, coagulating fluid were withdrawn. This contained cells, of which 88 per cent. were polymorphs; it was culturally sterile.

On December 15th an agglutination test of the patient's blood serum was positive for *Br. melitensis* at a dilution of 1 in 125, and for *Br. abortus* at 1 in 50. A rough absorption test of specific *melitensis* and *abortus* serums with a suspension of the organism showed more complete absorption of the former than the latter. These findings, coupled with the fact that the primary culture grew well without any CO_2, left little room for doubt about the identity of the organism; but in view of the rarity of the case Professor G. S. Wilson, who has made a special study of this group of bacteria, was asked, and kindly consented, to examine the culture. His report includes the following data.

1. Sensitiveness to Dyes

Culture Medium Containing	Growth in 3 Days at 32° C.
No dyes (control)	++
Thionin, 1 in 60,000	+
Thionin, 1 in 30,000	±
Fuchsin, 1 in 50,000	++
Fuchsin, 1 in 25,000	++
Methyl-violet, 1 in 100,000	++
Methyl-violet, 1 in 50,000	+
Pyronin, 1 in 200,000	±
Pyronin, 1 in 100,000	−

2. Agglutination by Special Monospecific Serums

Strain	*Abortus* Serum	*Melitensis* Serum
Br. abortus	1 in 640	0
Br. melitensis	0	1 in 80
Patient's strain	0	1 in 80

3. Production of H_2S—No production in four days.

A second specimen of pus from the same source gave a rather more profuse growth of the same organism.

The affected knee showed great improvement on complete immobilization, and the patient's general condition remained good. The signs of inflammation in the joint quieted down, the knee was cool, there was very little fluid, and the patella was freely movable. But on February 2nd the patient developed a fluctuant swelling on the back of his left forearm, which appeared to be a further pyaemic lesion. On February 24th there was very slight fluid in the knee-joint, the rib wound had completely healed up, and the swelling on the forearm had disappeared.

We conclude that both bone and joint lesions were complications of a *Br. melitensis* infection.

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ABDOMINAL NEPHRECTOMY FOR RUPTURED KIDNEY

WITH NOTES OF THREE CASES

BY

HAROLD DODD, CH.M., F.R.C.S.

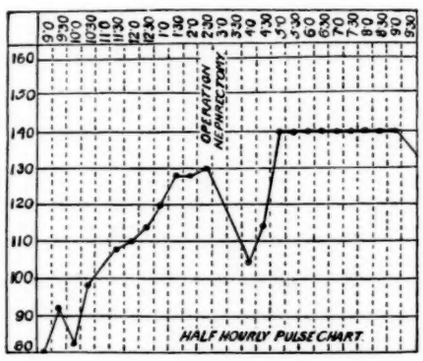
HONORARY SURGEON, KING GEORGE HOSPITAL, ILFORD, AND ROYAL HOSPITAL, RICHMOND

The abdominal approach to an injured kidney, only briefly touched on by the textbooks on emergency surgery, is so useful as to be worthy of comment, for "run-over" accidents are, if anything, steadily on the increase.

CASE REPORTS

Case 1.—Two years ago I operated on a man of 20, who had been run over. He had several fractured lower left ribs and a ruptured spleen. Opening the abdomen through a mid-line incision, I found much free blood and a grossly torn spleen, which I removed, good access being obtained by extending the wound transversely to the left. After mopping the blood and clots from the left para-colic gutter, I noticed the peritoneum was bulged forwards and discoloured, suggesting a retroperitoneal haematoma. Opening the peritoneum outside the descending colon, I found a completely torn kidney, which I removed without difficulty, after ascertaining that the opposite kidney was intact. Unfortunately, as occasionally happens with gross rib injuries, the man died fourteen days after operation from an extensive pneumonia, with pleural and pericardial effusion.

Case 2.—This occurred last year, when a young man injured his right lower ribs and sustained a compound comminuted fracture of his right ulna as the result of a motor cycle accident. After admission to hospital his pulse steadily rose (see chart). His abdomen was rigid all over, and the pain was especially localized at the right upper quadrant. The patient had haematuria. The provisional diagnosis was ruptured kidney, with a possible additional injury to the liver,



CASE 2

suggested by the rapid onset of the shock and collapse, and acute upper abdominal pain and rigidity. Operating through a split upper right rectus incision I found the abdominal contents normal, but a large right retroperitoneal haematoma was discovered. I opened the peritoneum outside the ascending colon and removed the right kidney, which was completely torn into halves, one, quite detached, lying in the haematoma. The operation was not difficult, being complete in less than twenty minutes, and the patient made an uninterrupted recovery.

Case 3.—At 11 a.m. on March 5th, 1932, a girl of 17½ ruptured her left kidney as a result of a fall down twenty-two stairs. She landed on her feet, giving her back a severe twist, and she immediately felt a sharp pain in her left side. Her doctor gave her morphine. At 2 p.m. she vomited. She was admitted to hospital with abdominal pain and gross haematuria at 3.45 (five hours after the accident). After admission her pulse rate rose slowly. She was given a further 1/6 of a grain of morphine. I saw her several hours later, when she was slightly pale and very restless, moaning with pain. The whole abdomen was rigid and hyperaesthetic, no difference between the flanks being elicited. Examination

was, however, unsatisfactory, on account of her general abdominal tenderness and persistent noisy restlessness. She was given a quarter of a grain of morphine, and I saw her again three-quarters of an hour later. The picture had changed. She was now quiet, but quite awake and alert; the right half of the abdomen was flaccid, but the left half was still tense, and this loin appreciably thicker than the right, while there was a little shifting dullness in the flanks. The diagnosis was thus clear—a ruptured left kidney, with a surrounding haematoma, and possibly an associated ruptured spleen, suggested by the shifting dullness and pain in the left upper quadrant of the abdomen.

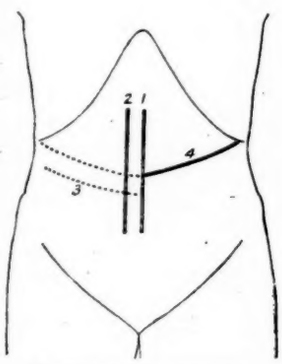
With the bridge of the operating table well elevated under her thoracic-lumbar region, I made a transverse incision across the left half of the abdomen, beginning at the tip of the eleventh rib and ending just above the umbilicus. The abdominal contents were normal, but there was a large left lumbar haematoma. It was the work of a moment to confirm the presence of an apparently normal right kidney, and, after inserting a pack to prevent soiling the abdominal contents with blood, I removed a completely divided kidney. Again the operation was technically easy, and completed in just over a quarter of an hour. The elevation of the bridge brings the kidney in close proximity to the surface, and also opens the transverse wound; there was surprisingly little tendency of the intestines to bulge out. By lowering the bridge and raising the foot of the table the closing of this incision was made extremely easy, and the patient's general condition was helped by making the head relatively low. An uninterrupted recovery followed.

DISCUSSION

Thus, nephrectomy can be rapidly performed through an anterior abdominal incision, with the bridge of the operating table raised or a pillow under the loins. There is a choice of four quickly made incisions:

1. The mid-line.
2. The right or left split rectus.
3. The Rutherford Morison transverse.
4. A transverse extension from the mid-line or split rectus.

Personally, I favour the transverse incision; it gives splendid exposure, and is rapidly made and closed. The ease of anterior nephrectomy was further demonstrated to me whilst doing gall-bladder surgery, when I repeatedly noticed the nearness to the surface of the right kidney when the bridge of the operating table was raised under the patient's back. The elevation of the lumbar thoracic part of the body by a pillow or bridge of the operating table is an important point in this method of kidney approach.



INCISIONS FOR ANTERIOR NEPHRECTOMY

1 = Mid-line.
2 = Split right or left rectus.
3 = Transverse extension of 1 or 2.
4 = Transverse or Rutherford Morison (can be extended over to opposite side, as per dotted line).

Advantages of the Method

The advantages of the anterior approach are:

1. The rapidity of the exposure of the kidney, without injury to nerves or division of large muscles. The lumbar incision always bleeds freely, the twelfth dorsal nerve may be injured, and it takes some time to close the wound securely.

2. The exclusion of a possibly associated intra-abdominal injury—for instance, the liver on the right side and the spleen on the left.

3. The immediate determination or otherwise of the presence of the other kidney: with the lumbar incision, the peritoneum is sometimes purposely opened for this, and occasionally this is done accidentally.

4. The ease of removal of irreparably injured kidney.

5. The quick and sound closure of the wound.

6. There is no need to place the patient in the classical "kidney position" on the side, a position which is unsatisfactory unless it is just right, needs special table appliances, or bolstering up with sandbags and staff to do the lifting. Some of these items may not be available in an emergency.

7. The anaesthetic is more easily administered with the patient on the back than on the side; a special advantage in urgent surgery where the advantage of the help of a good anaesthetist is not always possible.

Objections to the Method

These are:

1. The danger of sepsis and peritonitis. In young people and in accidental injuries this is certainly slight. Even if sepsis is present, most surgeons at some time have been grateful to the ability of the peritoneum to deal with infection, when they have accidentally opened it during a prostatectomy, with the usual infected bladder, or in cases of nephrectomy with dense surrounding adhesions.

2. Trouble may arise later from the formation of intra-abdominal adhesions. This is a slight risk when set against the facility with which a life-saving operation can be carried out at the time.

3. In any operation in which the peritoneum is opened the shock is increased. This is a definite disadvantage, but against it can perhaps be set the rapidity and ease with which the operation is conducted. In addition, as the dorso-lumbar area of the spine is pressed well forward into the wound by the back rest, it is possible quickly to insert 40 c.cm. of 1 per cent. novocain into the splanchnic plexus.

SUMMARY

(*a*) Three cases of abdominal nephrectomy for ruptured kidney are described.

(*b*) The advantages and disadvantages of the abdominal approach to the kidney are discussed.

(*c*) The diagnostic value of an adequate dose of morphine is illustrated in Case 3.

A CASE OF ACUTE GLANDERS

BY

S. G. RAINSFORD, M.B.

SURGEON LIEUTENANT COMMANDER, R.N.

The following case may be found worthy of publication by reason of the rarity of this disease and of the fact that it is probably the first case of its kind to be met with amongst the personnel of the Royal Navy.

CASE REPORT

The patient, a Somali aged 26, received from H.M.S. *Hastings*, a sloop operating on the Red Sea patrol, was admitted to the R.N. Hospital, Malta, on February 29th, 1932. He had reported sick on February 28th, complaining of cold, shivering, malaise, loss of appetite, and acute pain in the nose. What appeared to be a small abscess was found in the right nostril. His temperature then was 98.8°, pulse 76. The following day his temperature rose to 100.4°, pulse 76, and the man complained of general aches and pains, and vomited several times. The medical officer of his ship forwarded him to hospital as a case of gastric influenza.

On admission the patient's temperature was 102°, pulse 80. No history of previous illnesses, family history, etc., could be obtained, owing to his inability to speak English. The following account of the clinical condition has been taken from notes made by the medical officer who admitted the case.

The patient was obviously ill, and complained of headache and pain in the right side. There was a raised rash over the body resembling urticaria, with patches about a quarter of an

inch in diameter. Over the left hip there was a patch about two inches in diameter. The right eye showed some degree of conjunctivitis and the lower lid was swollen and painful. There was a healing furuncle in right nostril.

EXAMINATION AND PROGRESS

Percussion produced pain over third, fourth, and fifth ribs on right side anteriorly. Breath sounds were shallow, but no adventitious sounds were heard. Central nervous system normal. The tongue was furred; no signs in abdomen; patient vomiting. On the evening of March 1st the temperature rose to 103.4°, pulse 102, and respirations 28. On the morning of March 2nd temperature was 104.4°, pulse 134, respirations 44. Patient was dyspnoeic and very distressed. A large, dull, painful, hard, tender swelling was found to have developed, involving most of the right breast. The rash had disappeared and the condition of the right eye appeared improved. Acute tenderness was found over the right frontal sinus, and the case was therefore forwarded to the surgical section. Here *x*-ray examination showed both frontal sinuses clear. Later in the day the patient commenced expectorating blood-stained phlegm, which appeared to be coming from the nasopharynx. The leucocyte count was: March 2nd, a.m.—11,800; March 2nd, p.m.—8,400. Differential count: polymorphs, 38 per cent.; lymphocytes, 44 per cent.; mononuclears, 18 per cent.

Under local anaesthesia an incision was made into the swelling on the right side of chest, but no pus was found. On the morning of March 3rd the temperature had dropped to 100°, and the pulse was extremely weak and practically uncountable.

I first examined the patient on the evening of March 3rd. His temperature had then dropped to 99° and he was pulseless at the wrist. He appeared to be extremely prostated. Respirations were rapid and very shallow. Both nostrils and nasopharynx were filled with sanguineous pus. Extreme tenderness was present over base of the nose. The swelling on the right side of chest was hard, tender, and painful, and appeared to be either fixed, or deep, to the pectoral muscles. Examination of the chest showed signs of consolidation of the upper lobes of both lungs.

A diagnosis of glanders was made on the results of this examination and on the following points—namely: (*a*) the onset of the illness with what was thought to be a furuncle in the nose, (*b*) the description of the rash, (*c*) the development of an intramuscular abscess in the right pectoral muscle, (*d*) high pyrexia, (*e*) consolidation of the lungs, (*f*) extreme prostration, (*g*) sanguineous discharge from the nose, (*h*) the tenderness over the base of the nose. To make the clinical picture complete all that was now required was some evidence as to a possible source of infection. The patient had that morning, by means of an interpreter, made a "will" in English. On examining this it was found that part of his estate consisted of horses and camels. This showed that the patient at some time or another had most probably been in close contact with horses.

The patient died two hours after I had examined him. Swabs taken from the nose after death showed the presence in the films of numerous small slender Gram-negative bacilli, which stained extremely poorly with the usual aqueous dyes. As well as these poorly staining bacilli there were numerous Gram-positive organisms.

POST-MORTEM EXAMINATION

Permission to perform a complete necropsy could not be obtained. All that was allowed was examination of the thoracic cavity, the result of which is reported in full.

There was a small incised wound, two inches long, on the right side in mid-axillary line running proximo-distally. It passed deep to deep fascia. The right pectoral muscle was soft and necrotic, and there was a small collection of pus between pectoral and intercostal muscles. This was of a pale colour, resembling milk chocolate. The whole of the right pectoral muscle was soft and fragmented, and appeared to be bathed in this chocolate-coloured pus. The ribs were normal.

The pleural surfaces of both lungs were covered with a dry fibrinous lymph exudate, of a very tenacious and elastic consistency. Long strips of this were seen stretching from the parietal to the visceral pleura when on opening the thoracic cavity the lungs collapsed.

Left lung.—Base and posterior surface densely adherent to parietal pleura, anterior edge adherent to pericardium and anterior edge of right lung. Upper lobe showed a lobular rather than a lobar type of consolidation, and was of a peculiarly brilliant red or scarlet colour. The cut surfaces of these consolidated areas were very moist, and large quantities of bright red blood-stained frothy fluid were exuding from the finer ramifications of the bronchi. A number of small greyish or yellowish areas, more or less circular in shape, from 2 to 5 millimetres in diameter, could be seen studded in the haemorrhagic consolidated areas. These small areas had the consistency of thick pus or caseating material. At the base one large nodule as big as a bean was found, which on opening exuded the same peculiar chocolate-coloured pus. The lung tissue surrounding this nodule was more fibrous than elsewhere, and the lower lobe was not haemorrhagic or consolidated.

Right lung.—This was in a similar condition to that of the left lung. There was consolidation of upper and middle lobes and also haemorrhagic consolidated areas studded with small yellow or greyish-coloured nodules. In the lower lobe, which was neither consolidated nor haemorrhagic, a few nodules were found, which were hard and apparently calcified. It was comparatively easy to shell out some of these.

The lymph glands at the roots of both lungs were slightly enlarged and very dark in colour. On sectioning they exuded a very dark-coloured fluid, and the cut surface appeared to be very soft. The heart was normal.

Microscopical sections of the nodules showed them to be composed of a central area densely packed with polymorphonuclear cells. Around this was an area composed of endothelial and large macrophage cells, which were filled with black granular material resembling carbon. Outside this area the condition of the lung resembled that of croupous pneumonia in the stage of red hepatization.

Films made from the nasal discharge, from the chocolate-coloured pus, and from the caseous material of the nodules all showed the presence of slender Gram-negative bacilli, of lengths varying from 1 to 6 mm., which stained poorly with all the usual aqueous dyes. Some of the longer bacilli showed beading. As well as these organisms all films showed large numbers of Gram-positive cocci. *B. mallei* were, however, isolated from swabs taken from the trachea at the post-mortem. The findings showed that there had been a chronic infection present for some time, and it was an acute exacerbation of this that was the cause of death.

Further inquiries concerning the patient's movements showed that the last time he had been home, and presumably in close contact with his horses, was in December, 1931.

Memoranda

MEDICAL, SURGICAL, OBSTETRICAL

A CASE OF CONGENITAL ATELECTASIS

A baby was admitted to the Knighton Hospital with his twin sister, the reason for admission being "white leg" in the mother. His weight at birth was 6 lb.; he was fed on diluted cow's milk, and by May 20th had gained 4 lb. To all appearances he was a perfectly normal baby. On the evening of May 23rd he was noticed to be very pale, and when lifted from his cradle gave a few choking breaths and died. A little frothy mucus escaped from the mouth and nostrils. He had received his last feed three hours before death.

On post-mortem examination the left lung was represented by a fleshy piece of tissue about the size of a five-shilling piece, pink in colour, attached to the left bronchus. It sank at once in water and did not exude gas on section and pressure. The trachea and main bronchi were opened up, but no obstruction was discovered. The heart was

slightly dilated but otherwise normal, and no abnormality was discovered in the abdomen.

It appears, then, that this infant survived eleven weeks with congenital collapse of the left lung, and nothing suggested in that time that he was not perfectly normal. The twin sister, a more delicate child, weighed only 3 lb. at birth. She now weighs 7 lb., and on examination appears normal.

G. H. H. BOOTH, B.Sc., M.B., Ch.B.
Knighton, Radnorshire.

PERFORATION OF THE ORBIT WITH AN INDELIBLE PENCIL

The following is a case similar to that described by Mr. Cole Marshall in the *Journal* of April 16th. It is the only one of the kind I have come across, and I have had the opportunity of watching the result for a period of years.

A boy aged 1 year and 9 months was brought to me in June, 1923; his mother stated that a month previously an indelible pencil punctured his left upper eyelid. The puncture healed up well, but the lid began to droop. On examination there was definite ptosis; the puncture mark could not be seen, and nothing else was detected. In December, 1923 (six months later), I saw him again, and there was then a well-marked hard painless mass under the orbital arch, which was fixed, although the skin moved freely over it. The swelling had only been noticeable a few days.

Under general anaesthesia I made an incision over the mass and after dissection found it fixed to the roof of the orbit. On cutting it away it proved cystic and contained a thick black glairy fluid; the portion attached to the orbital roof, when cut and curetted away, revealed rough bone. A gauze drain was inserted and three skin sutures. Healing was complete in fourteen days. The cyst was about the size of a small marble, with thick fibrous walls. I saw the patient again a month later and the ptosis was disappearing. In October, 1930, seven years later, there was a condition of very slight ptosis.

This case shows the reaction of the tissues to the chemical substance in an indelible pencil. Here, however, I do not think earlier surgical intervention would have helped matters, as the bit of pencil must have become rapidly encysted and only the enlargement of the cyst called attention to its presence.

T. MILNES BRIDE,
Honorary Surgeon, Manchester Royal Eye Hospital.

Reports of Societies

SYNTHETIC ANTI-MALARIAL REMEDIES AND QUININE

The annual general meeting of the Royal Society of Tropical Medicine and Hygiene was held at Manson House, 26, Portland Place, W., on June 16th, the president, Dr. G. CARMICHAEL LOW, being in the chair. After the annual reports of the council and of the treasurer had been read, the president presented the Manson medal to Dr. G. K. Strode of the Rockefeller Foundation, who received it on behalf of Dr. Theobald Smith of New York.

In opening a discussion on synthetic anti-malarial remedies and quinine, Colonel S. P. JAMES pointed out that this embraced two subjects—namely, the synthetic anti-malarial remedies and the cinchona alkaloids, particularly quinine. The aim of large-scale drug treatment, such as that of the Malarial Commission of the League of Nations, was not necessarily concerned with the most effective anti-malarial remedy, but with a remedy so cheap and abundant that it was readily available in all malarious countries. Anti-malarial chemotherapy, on the other hand, had quite a different aim. It appreciated quinine as one of the most remarkable of drugs, yet one possessing several grave defects as an anti-malarial agent. In particular, quinine did not prevent relapses or infection of either the human host or the insect vector. Chemotherapy sought, irrespective of cost, to find drugs effective in those respects in which quinine was defective. Further, its aim was to discover how to deal separately with each stage in the life-cycle of the parasite. These new ideas were the outcome of study in terms, first of the different species of parasite, and later of the different phases of the same species. Quinine was known to have an excellent action on the schizonts, but little or no action against the gametocytes, whereas plasmoquine showed the reverse effect. Finally, the subject must be studied with different geographical strains of each species and phase of parasite. Thus, while quinine would not cure cases of malignant tertian malaria associated with the virulent Italian strain, atebrin did so almost at once. Similarly, in benign tertian malaria neosalvarsan exerted a powerful action on the severe Madagascar strain, but a very weak action on the mild Dutch strain. The contradictory observations on the properties of plasmoquine were probably due to the different strains studied. This drug, in a dosage of 0.06 gram given daily for six days, prevented only the primary attack, and not generally the relapses. Undoubtedly plasmoquine was a causal prophylactic, but in this excessive dosage it could not be taken for more than three to four days. A less toxic preparation was needed.

Dr. T. A. HENRY said that the Malarial Commission of the League of Nations had for some years been interested in the discovery of some method of providing anti-malarial treatment for the large numbers of victims of malaria who were too poor to buy quinine, and where Governments could not afford to buy it for them. Of the four alkaloids of cinchona bark, quinine and quinidine were about equal as anti-malarial agents, while cinchonidine and cinchonine were slightly inferior. Cinchona febrifuge had been used much in India, but its variability in composition was a drawback, and the Malarial Commission had finally suggested a new cinchona product, totaquina, which was manufactured by two different methods and standardized to contain 70 per cent. of the crystallizable alkaloids, of which 15 per cent. had to be quinine. The dosage was the same as for quinine sulphate. Finally, Dr. Henry pointed out that, though 95 per cent. of the world's supply of cinchona bark was grown in Java, the rationalization of the industry had been justified, as the supply was made to meet the demand and calamitous over-production thus prevented.

Professor N. H. SWELLENGREBEL described a prophylactic experiment with plasmoquine directed against a Madagascar strain of benign tertian in Amsterdam by the use of doses of artificially infected mosquitos; 0.03 gram was given daily for six days, treatment commencing the day before exposure to infection. All the patients developed malaria at the usual time, except one in whom the attack occurred some months later. During the primary attack some received plasmoquine, others plasmoquine plus quinine, and some quinine only, yet in all cases relapses or recurrences were noted. This was quite contrary to the experience of Dr. Piebenga, working elsewhere in Holland with the home strain of benign tertian, and using naturally infected mosquitos. Here quinine and plasmoquine had prevented relapses and recurrences in a large proportion of cases. The general relapse rate for Holland was 50 per cent. The failure, in his cases, both to prevent the primary attack as well as relapses, did not contradict the results of other observers; it only showed that a

system of prophylaxis and treatment which had definitely proved of value may occasionally break down under the stress of hyperinfection or of a virulent strain of parasite.

Dr. W. D. NICOL showed three slides illustrating the natural history of 161 cases of benign tertian (Madagascar strain) infected by mosquitos at Horton. Of these, 140 developed malaria within the normal incubation period, and twenty-one manifested latent malaria twenty-five to forty weeks after infection. The primary attack was terminated with quinine in 110 cases, with some quinine preparation in eighteen, with plasmoquine in six, and with plasmoquine combined with quinine in six. Of these, twenty-nine recrudesced, thirteen relapsed, and thirty-nine recurred.

Professor W. SCHULEMANN said that the aim of the Elberfeld workers was not to produce synthetic quinine, but to discover new drugs giving results which quinine could not achieve. Plasmoquine combined with quinine (1:30) had reduced the relapse rate of tertian malaria from 50 to between 2 and 5 per cent. The same held with quartan malaria, but in subtertian the relapse rate was not diminished. It did, however, prove an effective gametocide in subtertian malaria, and enabled them to approach the problem of malarial sanitation from a new angle. Kikuth's experiments on haemoproteus infection in paddy birds indicated that plasmoquine caused temporary destruction of the gametocytes, but that they reappeared by development from plasmoquine-resisting schizonts unless combined with a drug like atebrin, which was schizonticidal. Quinine was not a causal prophylactic ; it controlled clinical symptoms during its administration. Clinicians had to learn to choose the drug or combination of drugs most suitable for any given case, but the ideal—a single drug effective against every type and strain of parasite—was not at present available.

Dr. MANSON-BAHR gave his recent experiences of the treatment of four cases of subtertian malaria from the West Coast of Africa with atebrin, pointing out that clinically all had done well, schizonts disappearing from the blood stream after 0.9 grain. In one case of cerebral malaria, crescents, which appeared after all schizonts had disappeared, had persisted for eight days, and then vanished without any further treatment.

Sir MALCOLM WATSON cited four cases recently treated in Africa with atebrin, and one with atebrin and plasmoquine. The latter and one out of the first four had relapsed. Further experiments were in progress, and he hoped that the results would be available in six months' time. Regarding these strains of malaria, he thought there was evidence that the virulence of a local strain might be increased by passage.

Sir ALDO CASTELLANI said that quinine in large doses should be given intramuscularly and intravenously in pernicious malaria rather than plasmoquine. In relapsing cases the combination of plasmoquine and quinine was useful, especially so in blackwater fever or quinine idiosyncrasy.

In reply, Colonel JAMES emphasized that there was nothing industrial in the chemotherapy of malaria, and expressed the view that the new synthetic remedies would not affect the cinchona industry.

The British Science Guild has appointed a committee of technical experts on slaughterhouse methods and equipment, with Lieut.-Colonel Sir Arnold Wilson as chairman. The terms of reference of the committee are as follows: "To verify and tabulate information relating to methods of, and equipment for, the slaughtering of animals for food, with special reference to sanitary, dietetic, and humane requirements ; to investigate new methods and equipment ; to convey information on the subject to local authorities and other bodies and persons."

Reviews

MEDICAL PRACTICE IN THE BRITISH ISLES

In vol. iii of *International Studies on the Relation between the Private and Official Practice of Medicine*[1] in different countries, Sir ARTHUR NEWSHOLME comes back from the European groups, with which he has hitherto dealt, to England and Wales, giving supplementary sections for Scotland and Ireland. The result is a volume of over five hundred pages of historical summary and modern information, and it obviously goes far to meet one of the principal intentions with which the series was undertaken. Primarily, no doubt, the Milbank Foundation desired a comprehensive survey to enable conclusions to be drawn from many civilized countries about the present position and future developments of medical practice in relation to the State and official services. Meanwhile, each volume gives in large measure what the foreign student—and in our case also the student from British Dominions, India, and our Colonies—needs to have before him when he sets out to understand how medical and public health matters are organized in this country. And if the present volume is invaluable from this point of view to the visitor, it has also many uses for the English reader. In a sense it deals with circumstances and organizations which are already part of his daily life and knowledge. Any medical reader in this country, whether an official or in independent practice or both combined, will find chapters on matters he knows through and through, which challenge him to qualify or amplify their statements from his own hard experience. But there can be few who are competent thus to treat the whole volume, or be able easily to turn elsewhere for a comprehensive outline of the many factors which have been and are at work in forming the medical and health policy of to-day.

Half the battle in such a survey as this is its lay-out. Sir Arthur Newsholme's plan is to begin with general methods of government in this country and an admirably concise statement of our local government system, to which throughout he gives far greater weight than to central control and direction. This is followed by an account of the organization of the medical profession itself, in which the position taken by the British Medical Association in moulding professional developments and the relation of the medical practitioner to official services takes a prominent place. With these two main elements described, some of the principal facts about the different general medical services in England are successively taken. Voluntary hospitals and out-patient systems, municipal hospitals and institutional provisions for the sick, the insurance medical service, and the mass of special services for maternity and child welfare, schools, infectious, venereal, and mental diseases, are dealt with seriatim. Having taken these nationally, the author has wisely tried to present their actual working in terms of typical localities.

Even the main elements of public and private medical practice cannot at the present day be regarded as fixed, and it is noteworthy that the results of so recent a survey should already require to be reconsidered in some respects. The effect of the transfer of the Poor Law services of 600 or more boards of guardians under the Local Government Act of 1929 is shown in new developments reported almost day by day, notwithstanding the delays and hesitations brought about by the general demand for

[1] *International Studies on the Relation between the Private and Official Practice of Medicine, with Special Reference to the Prevention of Disease.* Conducted for the Milbank Memorial Fund by Sir Arthur Newsholme, K.C.B., M.D., F.R.C.P. Vol. iii: England and Wales, Scotland, Ireland. London: G. Allen and Unwin, Ltd.; Baltimore: Williams and Wilkins Company. (Pp. 558 ; illustrated. 21s. net.)

economy and the financial crisis. As an example, the figures for beds in Poor Law infirmaries, as given on page 60, must now be considerably changed, as month by month more hospital beds are being transferred by appropriation under the Public Health Acts from the Poor Law to the public health medical service. The experiment quoted on page 102 from Bradford, so often a pioneer in the municipalization of health services, is no longer a rarity. However it may be regarded, it is a fact that the public purse can now provide a type of hospital service quite different from that available when Poor Law infirmaries or the infirm wards of workhouses offered the only general hospital beds publicly maintained. And equally it has to be realized that the voluntary hospital becomes increasingly dependent on payments for services rendered. Similar considerations apply to home nursing—to which the author gives attention—where the difficulty seems even more acute in obtaining voluntary contributions to maintain what has to be recognized as an essential public service. Active changes such as these are taking place on the one side ; on the other has to be set the inhibition and postponement of hopeful and promising plans for developing the national health insurance work to meet the public health needs of the country which results from the financial position of to-day. Never was there a time in which it was more difficult to sum up the tendencies and probabilities of the public and private medical services. Foreign experiences of parallel problems, however, may well be useful in such an attempt ; it is worth making on an international basis.

In conclusion, we must remember how much Sir Arthur Newsholme, both before and during his years of service as Chief Medical Officer at the Local Government Board, was identified with every movement for improving the position and influence of the medical officer of health. Each year puts a heavier burden on the shoulders of this officer, gives him more responsibility, and at the same time more valuable work to do. Sir Arthur makes an interesting statement of his faith when he says:

> "At every step each year the medical officer is first and foremost an educator of his local authority, and in the writer's view this is far and away the most important direction in which educational work is persistently needed. . . . The general public outside the local council may be an indifferent, a reactionary, or a stimulating influence, and the wise and efficient medical officer is he who gradually improves the education of the public and especially of voluntary social workers as well as of the officially elected representatives with whom he has chiefly to work."

Medical officers of health, in return for this deserved tribute, would do well to study the present volume, and consider its chapters one by one in relation to the districts of which they have charge.

RADIOLOGICAL STUDY OF THE PARANASAL SINUSES AND MASTOIDS

A study of the best radiological technique by which the condition of the sphenoid and posterior ethmoidal air cells could be investigated, followed later by a similar study for the mastoid process and petrous bone, first in the adult and then in infants, has led Dr. AMÉDÉE GRANGER of New Orleans to present his results in the form of a book.[2] The most valuable, and perhaps the most convincing, section relates to the sphenoidal sinus. It is demonstrated that, by using the author's head-rest with an opening for the nose, antero-posterior views taken at an angle of 23 degrees, as recommended by Caldwell, show the antrum and frontal sinus satisfactorily. The view can be repeated with precision, because the fixation of the head is accurate, and, because the alveolo-glabellar line is constant, a standard position is assured for every head. At an angle of 107 degrees the sphenoidal sinus is shown, and is bounded above by a line (the sphenoid line of Granger) which defines the upper limit very clearly. The author finds no value in lateral views, except to indicate the capacity of the sphenoid. He has also developed a position of the head by which changes in the temporal bone are best studied. The position again is exact, so that the view can be repeated indefinitely.

The book consists chiefly of a number of plates which display the points in the author's argument, and they cannot fail to carry conviction. The text forms a comparatively small part of the book, but is sufficient to outline the experiments which have led him to adopt the positions and apparatus which he advocates, and to describe the interpretation of the skiagrams so obtained. The difficulty of obtaining good skiagrams of these regions, and even then of interpreting them, is such that a study of this kind is of great value, and Dr. Granger appears to have made a genuine contribution, which deserves careful attention by radiologists. The simplicity of his methods should evoke their interest and sympathy, and the consistent results should help them to give reliable information to the otological and neurological clinic.

[2] *A Radiological Study of the Para-nasal Sinuses and Mastoids.* By Amédée Granger, M.D. London: H. Kimpton. 1932. (Pp. iv + 186 ; 113 figures. 25s. net.)

OCULOGYRIC CRISES OF ENCEPHALITIS LETHARGICA

Of the many springs that feed the general stream of literature on encephalitis lethargica those in America do not seem at present in danger of running dry. One of the most recent contributions from that country is a monograph,[3] by Dr. SMITH ELY JELLIFFE of New York, who selects for detailed examination the oculogyric crisis of lethargic encephalitis as one among a large array of symptoms that have invested the chronic form of this disease with such dramatic interest. At the same time Dr. Jelliffe is at pains to show that these strange ocular manifestations, like the associated post-encephalitic respiratory disorders, are but one aspect of a complicated and generalized defensive effort on the part of the post-encephalitic patient, and that the peculiar behaviour " is related to certain phenomena of entirely different external manifestations with, however, close internal associations."

After a brief historical reference to the writings about cramps of the eye muscles, the author passes to a review of the recent literature on this particular subject, giving a complete digest of over 200 cases which have been described in the literature by a hundred and more different observers during 1920–31 inclusive. In Chapter III there follow personal notes on four cases which first came under the author's direct observation in 1928. The next four chapters are devoted to the symptomatology of oculogyric crises—which are not restricted to the post-encephalitic condition—and the author again insists that these phenomena cannot be dismembered from other synergistic movements, such as those of position, head-righting, and speech, and those that are psychic. Accordingly, it is pointed out, a complete oculogyric crisis, such as occurs in Parkinsonian subjects, usually presents the following make-up: (1) a paroxysmal spasmodic conjugate deviation of the eyeballs, most frequently upward and to the right, but not always so ; (2) slowing of thought movement (bradyphrenia) or " repression . . . at psychological levels " ; (3) emotional reactions (affective), and especially anxiety ; (4) states of conscious

[3] *Psychopathology of Forced Movements and the Oculogyric Crises of Lethargic Encephalitis.* By Smith Ely Jelliffe, M.D., Ph.D. New York and Washington: Nervous and Mental Disease Publishing Co. 1932. (Pp. vii + 219 ; illustrated. 4 dollars.)

awareness, ranging from hypervigilance almost down to unconsciousness. Regarding these last two aspects of a typical crisis, the author does not find much to his purpose in the literature he has previously reviewed; and when discussing, here and in the final chapter on psychopathology, the mental associations of the forced movements of oculogyric crises, he depends chiefly upon the experience of his own cases, or his own interpretation of the records of others, as well as upon the doctrines of psycho-analysts.

Dr. Jelliffe's monograph is, in some respects, another example of the useful stocktaking order of medical books, and busy practitioners and others will be grateful for the collection and critical survey of all the records of this strange syndrome. The monograph, moreover, conveys many of the author's opinions on the significance of the post-encephalitic state which will be of interest to psychiatrists and to those who concern themselves with the psycho-analytic possibilities in this complex nervous disorder of our day.

SURGERY FOR THE DENTAL SURGEON

As the author, Professor ERNST SEIFERT, states in the preface to his Textbook of the Surgery of the Head and Neck for Dentists,[4] this volume is intended exclusively for dental students and dentists. The dental student, having seen cases in the surgical clinic, needs a textbook in which he can read about the cases, and the practising dentist requires a book of reference for those surgical subjects which come within his special province. As a knowledge of pathological anatomy and general surgery is assumed, the chief emphasis has been laid on the clinical picture and its interpretation. Purely surgical treatment, which lies outside the province of the dental surgeon, is considered only briefly. Dental surgery itself, methods of anaesthesia, stomatology, and the majority of mouth diseases, are not dealt with, as they have already been treated in a special volume issuing from the same publishers.

A very clear account of the embryology of the face makes it easy to understand facial deformities such as hare-lip and cleft palate, for which the author recommends the same operations as those performed in England. In furuncle of the face he advises wisely against incision before a definite abscess has developed, for fear of opening up new tissue planes and lymph channels to infection, but no mention is made of the operation of tying the facial angular vein to prevent intracranial spread of the infection. For head tetanus anti-tetanic serum should be injected intravenously and also intrathecally. Recently the author has had encouraging successes, even in cases that had almost been given up, by injecting the serum under the dura mater, or even into the lateral ventricle of the brain after trephining the skull. Avertin narcosis is given to enable the patient to swallow and to rest quietly without convulsions. The jaw trismus can be relieved by injecting novocain into the jaw muscles. For malignant growths of the face surgical removal with the diathermy knife is advised. *X* rays should be employed only when it is realized that the removal has been incomplete, or to comfort the patient in an inoperable case. Excision of the upper jaw for growth should always be done under local anaesthesia, which has the advantage that there is much less bleeding, and that aspiration pneumonia, due to blood being sucked into the lungs, is avoided. For the cleansing of a foul ulcer the application of 25 per cent. zinc chloride paste or of the actual cautery is recommended. He makes the interesting statement that salivary calculi are always due to inflammation in the corresponding salivary gland, "which in the overwhelming majority, even if not in all cases, is an actinomycotic infection." Proof of the actinomycotic nature of the infection is found when the salivary gland is finally removed and examined microscopically in chronic cases, and also by demonstrating the presence of the ray fungus in the salivary calculus itself. Treatment in recurrent cases should therefore include removal of the corresponding infected salivary gland as well as the calculus. An excellent table of the differential diagnosis of ulcers of the tongue is given. Treatment of carcinoma of the tongue is by resection, with, if necessary, a temporary resection of the mandible, while removal of lymph glands in both sides of the neck is insisted upon. Radium combined with *x*-ray treatment is recommended only in cases unsuitable for radical operation.

The author has succeeded admirably in his task of producing a most interesting, instructive, and well-illustrated account of the clinical surgery of the head and neck, especially suited to the needs of those for whom the book is written.

[4] *Lehrbuch der Chirurgie des Kopfes und Halses für Zahnärzte.* Von Professor Dr. Ernst Seifert. Zweite, verbesserte und vermehrte Auflage. München: J. F. Lehmann. (Pp. 238; 219 figures. M.8; bound, M.10.)

THE PARATHYROIDS AND BONE DISEASE

In a valuable monograph replete with references, Dr. LIÈVRE, assistant physician to the Trousseau Hospital, Paris, deals with the rather difficult subject of parathyroid osteosis and the chronic osteopathies.[5] The new term "parathyroid osteosis" is introduced to describe those cases in which the mobilization of calcium, causing decalcification of skeleton, is dependent on the activity of a parathyroid adenoma. The nomenclature of chronic bony lesions is confusing and somewhat vague, for under the heading of osteomalacia cases of parathyroid origin, as well as those due to other factors—such as dietetic deficiencies—have formerly been included. Analysis of the literature shows that fifty-two cases of parathyroid osteosis are authentic. Among the chronic bone diseases which must be differentiated from those of parathyroid origin are Paget's osteitis deformans, cysts, giant-celled myelomas, and osteoporosis. The adenomata responsible for parathyroid osteosis must be distinguished from the common hyperplasia of the glands described in rickets and other diseases. On the other hand, parathyroid adenomas may exist without bony changes, just as similar tumours of the thyroid are not necessarily toxic; and it is possible that hyperparathyroidism may occur in the absence of a gross adenoma.

The histology of these adenomas, which are usually single, is described in considerable detail, mainly on the author's own observations. In addition to the bony changes those elsewhere—namely, metastatic calcareous formations in the subcutaneous tissues, viscera, and the myocardium—receive due attention. In the account of the clinical picture the author points out that the cardiovascular manifestations are commonly neglected, and refers to the occurrence of tachycardia—paroxysmal in two and permanent in one of his three cases.

This useful survey of the subject is dedicated to Dr. Lièvre's former chief, Professor André Léri, who in 1922 described the rare bone disease melerheostosis, or a flowing hyperostosis of a single extremity. Its publication this year coincides with a discussion on the clinical application of the recent work on bone diseases, to be opened by Professor E. Mellanby in the Section of Medicine at the forthcoming Centenary Meeting of the British Medical Association.

[5] *L'Ostéose parathyroïdienne et les Ostéopathies chroniques.* Par J. A. Lièvre. Paris: Masson et Cie. 1932. (Pp. 389; 14 figures, 16 plates. 60 fr.)

NOTES ON BOOKS

The fifth of the new Memoir Series of the London School of Hygiene and Tropical Medicine is devoted to the results of a survey[6] carried out in Southern Rhodesia by Dr. W. K. BLACKIE. He finds that the major helminthic infection in that country is schistosomiasis, especially urinary schistosomiasis. It is widely distributed throughout the native population, although a large proportion show no clinical symptoms, and it is by no means uncommon among Europeans. The vector—*Physopsis globosa*—is also widely distributed, and is controlled only by the seasonal conditions, which destroy large numbers of the snails. But for this fact the disease would be a grave menace. He also found that *S. mattheei*, a species previously found in ruminants in South Africa, is capable of causing the disease in man. Hookworm is common, too, but the infections are generally light. The other helminths include Taenia spp., *Hymenolepis nana*, Ascaris, Oxyuris, and Trichocephalus, as well as the somewhat unusual *Ternidens deminutus*.

Dr. J. J. CONYBEARE, in a second edition of the *Textbook of Medicine*,[7] by various authors, has succeeded in presenting the subject in just under a thousand pages. Various new contributors have been enlisted, and this has led to considerable revision of certain sections. Tropical diseases have been very well dealt with by Lieut.-Colonel Hugh Stott, I.M.S., physician to St. George's Hospital, Lucknow, and Drs. A. A. Osman and F. A. Knott have helped in revising the sections on kidney disease and disorders of the blood respectively. Many modern ideas about aetiology and treatment have been incorporated in the book, and random sampling suggests that this revision has been well carried out. It is a little doubtful whether the twenty-six pages devoted to diseases of infants are suitable in a book of this kind. Dr. A. G. Maitland-Jones has written admirably here on such subjects as rickets, coeliac disease, cyclic vomiting, etc., but he would probably agree that it is not fair to treat paediatrics as a subdivision of internal medicine, and the choice of the subjects on which he has written seems to be purely arbitrary. This is the only criticism to be offered of the editor's work, and the book can be recommended to students and practitioners as a sound compendium.

The Oxford University Press expects to publish next spring a *Shorter Oxford English Dictionary* in two quarto volumes containing over 2,500 pages. It is designed to make available in shorter and cheaper, but not less authoritative, form the materials collected and sifted for the great Oxford Dictionary (or New English Dictionary) and for its Supplement, which is now in an advanced state of preparation. The work was begun by Dr. Little in 1902, and since his death in 1922 has been carried on by Dr. C. T. Onions and the staff of the Oxford English Dictionary. The price of the *Dictionary*, bound in buckram, will probably be £3 3s. net.

[6] *A Helminthological Survey of Southern Rhodesia.* By William K. Blackie, M.B., Ch.B.Ed., D.T.M. and H. 1932. (Pp. vi + 91; 7 plates. Paper cover, 8s.; cloth, 10s. 6d.)

[7] *Textbook of Medicine.* By various authors. Edited by J. J. Conybeare, *M.C.*, M.D., F.R.C.P. Second edition. Edinburgh: E. and S. Livingstone. 1932. (Pp. xix + 1,004; 26 figures, 14 plates. 21s. net.)

PREPARATIONS AND APPLIANCES

AN ELECTRIC RETINOSCOPE

Mr. J. W. TUDOR THOMAS, M.S., F.R.C.S. (Cardiff), writes: Electric retinoscopes have not compared favourably with the usual method employed for retinoscopy—namely, a mirror and an external source of light. This is partly due to the difficulty of reproducing in a space of about 10 centimetres the optical conditions which normally require a space of a metre or two, in which the beam of light is slightly divergent. Another great disadvantage of the instruments has been the glare scattered by the edge of the hole in the mirror or from the surface of the glass of the mirror when one looks through a hole made by removing the silvering. A glare of this kind is objectionable in an ophthalmoscope, but in a retinoscope, where one looks at a fainter reflex from a considerable distance, it is a great handicap.

The present instrument, shown in Fig. 1, has overcome this last disadvantage by the use of the glare shield, a sectional diagram of which is given in Fig. 2. A short, fine tube is fastened into a plate of thin metal at an angle of 45 degrees. The plate is behind the mirror, the tube projecting through a hole drilled at 45 degrees. The projecting end is cut at an angle such that the top of the tube is flush with the front surface of the mirror, while the lower part is left of sufficient length to prevent any light from the beam reaching the top of the tube. The other end of the tube is cut at right angles to its length, and the tube is made as short as possible. The effect produced is that of shielding the eye from any glare when using the instrument. Mr. Thomson Henderson suggested a device of this kind some twenty years ago, and Mr. Bishop Harman has recently had it fitted to the ophthalmoscope he has designed.

FIG. 1

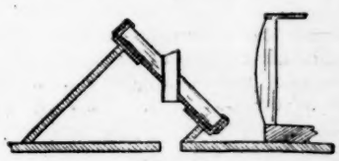


FIG. 2

Modern lamp makers must be given credit for one great improvement—a very small lamp filament almost square in appearance. This enables a very regular and symmetrical patch of light to be projected, and avoids a pseudo-astigmatic effect inseparable from the long coil or line filament hitherto employed. The power of the focusing lens in the instrument has been kept low, and the aperture is small, so that lens aberrations are greatly reduced.

The use of red or amber light for retinoscopy has been advocated for some time, and possesses the advantage of being less irritating to patients who are sensitive to bright light, so that retinoscopy in these patients can be carried out more satisfactorily. The red filter of this instrument is in a hinged cell at the top of the illuminating tube, and can be moved easily in or out of the beam. The reflex obtained when using the red filter is bright and clear, and it is quite useful for estimating errors of refraction in a patient whose pupils are small. The intensity of the light can be varied at will by means of the rheostat fitted in the handle of the instrument.

The lens system is attached to a sliding collar around the illuminating tube. When the collar is at the bottom of the tube the beam is divergent, as with a plano mirror. As the collar is moved upwards, the beam becomes less divergent—a similar effect to that of the very shallow concave mirror. Still further, the filament will come to a focus in the plane of the patient, a position to be avoided in use. At the top position of the collar the filament focuses between the instrument and the patient, and diverges from that point to give a divergent beam in the plane of the patient, as with a concave mirror retinoscope. The change from plano to concave mirror effect can be made by one finger while using the instrument. A standard "Ever Ready" battery No. 1829 supplies the lamp bulb, and is contained in a sand-coated non-slip handle. A fitting with leads to an outside source of current can be supplied for use in the consulting room to take the place of the battery. The battery can be used in place of the fitting when desired.

The instrument is made by Rayner, 100, New Bond Street, W.1.

SOME NOTES ON INCOME TAX

From letters and inquiries which reach us from time to time it seems that a few notes on one or two points of difficulty in the preparation of income tax returns may prove helpful to medical practitioners.

CASH BASIS OF RECEIPTS

The gross income of a practice is usually reckoned as the amount of the cash received during the year in question. Strictly this is incorrect; the amount should be calculated as the year's bookings, less a carefully estimated deduction for the probable shortage by reason of bad debts and remissions. Such an estimate is always difficult to make, and usually not very satisfactory when it is made. Further, where the practice is neither improving nor deteriorating to any substantial extent the amount of the cash income over a period of years must approximate closely to the amount of the *value* of the bookings over the same period, and in such circumstances the cash basis is fair to both parties and will be accepted by the Revenue. If, however, the gross income of the practice is rising, the cash receipts will lag behind the bookings, and the Revenue authorities are fairly entitled to decline to accept it; the reverse is, of course, the case if the practitioner has good grounds for thinking that the income is falling off.

If the circumstances are such that the "bookings" basis has to be applied, it is necessary at the end of each year to make out a list of unpaid debts due to the practice showing in each case: (*a*) the nominal amount, and (*b*) the amount considered to be "good"—that is, recoverable sooner or later. When this has been done the gross income of the practice can be conveniently calculated by taking the amount of cash receipts in the year and modifying it by adding any increase (or deducting any decrease) in the amount of recoverable debts at the end, as compared with the beginning, of the year. It is important to bear in mind that where the cash basis is accepted without such modification it is because it presumably yields approximately the same result taking one year with another. Hence, when tax is paid thereon for, say, the financial year 1931–2, based on the practice income of the year to December 31st, 1930, the income which is really being taxed is the income of 1931–2, and not the cash income of 1930. If this point is correctly grasped it will be clear that if the practitioner retired at the end of March, 1932, he will not be liable to pay tax on subsequent receipts, because they are merely the harvesting of a crop on which tax has been paid when it accrued.

DEPRECIATION

It may be taken as a rule, with very few if any exceptions, that the depreciation allowance should always be claimed where applicable. Practitioners sometimes prefer to claim the cost of renewal—for example, of a car—as and when it is incurred, as being less trouble to make and easier to understand. Cases frequently come to our notice where the result affects the practitioner adversely. For instance, the new car often costs less than the old one, so that the cost of renewal is less than the aggregate of the depreciation allowances would have been, or the practitioner dies or retires when a portion of the life of his car has been exhausted, and there is no means of obtaining an allowance, because the car is not being replaced by the taxpayer.

Although in the case of a medical practitioner depreciation claims are usually confined to cars, modern apparatus has now reached such a standard of cost and complexity that many practitioners, particularly radiologists and other specialists, find it advisable to claim depreciation on apparatus. The Income Tax Acts provide that "implements and utensils shall be dealt with on the cost of replacement basis, and in former days this category covered practically all medical apparatus, but nowadays in many cases the apparatus can fairly be claimed to fall under the head of "plant and machinery," and therefore to be a proper subject for the depreciation allowance. In this connexion the experience of a recent correspondent is of interest. He has divided his radiological apparatus into the two categories, and receives depreciation allowance at 10 per cent. on the more permanent articles of his plant, such as transformer, screening stand, treatment stand, couch, ultra-violet ray lamp, diathermy, galvanic and faradic machines, negative viewing box, etc., and claims cost of replacement of tubes, intensifying screens, cassettes, aprons, spectacles, gloves, cables, etc. Where an article on which depreciation has been claimed has to be replaced there may be a further allowance, known as an "obsolescence allowance," due. The total of the depreciation allowances should be deducted from the cost price of the machine and also the amount, if any, received for it by way of allowance or on sale. If there is a residue, that amount can be treated as a professional expense in the year of replacement, provided that it is covered by the cost of replacement.

A point to be borne in mind is that the Finance Act of this year effects a general increase of 10 per cent. in depreciation rates. Thus, where depreciation on a car would, apart from this provision, have been given at 20 per cent., it will be 22 per cent. for 1931–2, and so on. The difference is not substantial, but in these days of fiscal hardship one must be grateful for small mercies—and see that they are duly forthcoming.

COST OF REPAIRS TO HOUSE AND SURGERY

Our attention has recently been called to the probability that many practitioners who own their own houses overlook a possible source of relief. So far as concerns expenditure on the surgery or other professional portions of the premises the matter is comparatively simple: the cost is a professional expense and should be claimed as such. Where, however, the private house, or the private part of the premises, is concerned, the matter is not so simple. There is a statutory allowance on a sliding scale—for example, the houses of a gross value of from £40 to £100 receive an allowance of 20 per cent., and are accordingly assessed to Income Tax, Schedule A, on 80 per cent. only of their rack-rental value. But this 20 per cent. allowance may not be adequate over a period of years, and it is accordingly provided by No. V, Rule 8, of Schedule A of the Income Tax Act, 1918, that "if the owner . . . shows that the cost to him of maintenance, repairs, insurance, and management, according to the average of the five preceding years, has exceeded the authorized deduction . . . he shall be entitled to repayment of the amount of tax on the excess." Such claims are apt to be troublesome, because of the necessity for covering so long a period as five years, but where the cost of maintenance of a private house is high—as it often is with old property which for semi-professional reasons has to be kept at a high standard of repair and decoration—the claim may prove well worth the trouble involved. Special forms for the claim can be obtained from the inspectors of taxes, and contain fairly full explanations and instructions with regard to the preparation of the claim.

It is perhaps not generally known that on request duplicate income tax forms will be supplied so that taxpayers can conveniently retain copies of any returns or claims that they make. It is advisable to retain for future reference all correspondence received from the inspectors of taxes, and practitioners methodically inclined may find it helpful to obtain duplicate forms and file copies of their returns with that correspondence; in any case, however, a copy should be retained of any property maintenance claim, as some of the five years' figures will of course appear again in any claims made for subsequent years.

The Department of Scientific and Industrial Research has issued the second number of volume iii of the *Index to the Literature of Food Investigation*. As previously, this bibliography is arranged under fifteen headings, including: meat; fish; dairy produce; theories of canning, freezing, chilling; bacteriology; mycology; and engineering. This number may be obtained from H.M. Stationery Office, price 2s. 6d. net.

British Medical Journal

SATURDAY, JULY 9th, 1932

MEDICINE, INDUSTRY, AND ECONOMICS

The developments now taking place in industry and commerce have important bearings on medical practice. Not only are the actual conditions of work undergoing modification, but the redistribution and disturbances of employment which, in part at least, arise therefrom have effects on the whole social structure. There are hazards of particular trades which call for careful scientific study, but these come before most medical practitioners with comparative infrequency. Their responsibility for ill-health is universally admitted. It is not sufficiently recognized that, apart from specific risks, derangements of health may arise from general conditions within the industrial and commercial system. Anxiety and uncertainty have their repercussions over a wide field, and not least among these are the disharmonies they induce in the mind. It is not a single individual who is affected ; a whole family may suffer, and an atmosphere of strain in a home is particularly harmful to children.

As the world readjusts itself to meet the new economic conditions consequent upon a phenomenal increase in the productive power of modern scientific industry, so will these general effects tend to diminish, but while the period of adaptation lasts we must be prepared to cope with the difficulties that arise. Mechanized processes of industry and commerce will tend to increase, and may have very marked effects on those intimately concerned which, from their nature, could not be classed with the commonly accepted industrial hazards. Mechanization relieves a physiological burden at the cost of imposing a psychological one. Modern repetitive work is often mentally more trying and fatiguing than the older methods, and the effects it has on certain types of people are frequently very striking. Those who desire to obtain a general survey of the subject would do well to study a recent publication issued by the International Labour Office,[1] which summarizes many of the general and specific effects of the new industrial and commercial methods. The more directly medical aspects of this report are drawn largely from the work of the Medical Research Council's Industrial Health Research Board. It should enable the general reader to grasp some of the more far-reaching aspects of this intricate and fascinating subject. Much that is apparently conflicting and difficult to understand in modern industry and commerce comes into a harmonious whole when viewed through this valuable report. It is unnecessary to accept all the conclusions drawn, but there is ample well-documented evidence from which everyone can draw his own inferences. We think that rationalization will play a far bigger part in this country than it has hitherto done, but the matter is still an open question. It is not easy to determine to what extent centralized control of industry is taking place. We know, for instance, that over 90 per cent. of the factories in this country employ less than 100 workers, but we do not know how many of these officially separate factories are part of some scheme of centralized control, for it may vary from a rigid organization to the most flexible verbal agreement. The internal management of the small factory is, however, a matter of great importance. A recent pamphlet issued by the Industrial Welfare Society[2] is therefore not only opportune but necessary. Welfare schemes, and especially medical schemes, may be expensive and difficult to operate when units are small and at some distance from one another, but the Industrial Welfare Society has set out to show how, with the least expense, the maximum results can be obtained.

We should like to see some attempt made to unify medical supervision of small factories in a given area. No mention of this is made in the booklet in question, but we do not see any great difficulty in the way of employers, even in different trades, rationalizing their medical service. This would increase efficiency while keeping costs low. For the fullest development of medical work in industry, on the wide basis which we believe to be necessary under modern conditions, proper supervision and direction are essential. A single-handed nurse, however good she may be, is really inadequate for the purpose. The fundamental problems of industrial hygiene to-day are concerned with the adaptation of the worker to the demands of modern industrial technique, and the day has passed when an industrial clinic was mainly concerned with specific hazards or the treatment of accidents. If rationalization means the elimination of waste and increase of efficiency, then the pooling of resources for medical services in industry is an important and necessary step towards increasing happiness and health.

Rationalization has many direct lessons for our profession. Our hospital system is still full of curious anomalies, which it is the object of the British Medical Association's hospital policy to remove. That progress is still slow is evident from a remark in the Industrial Welfare Society's pamphlet to the effect that "preferential hospital treatment for workers can be secured by a works hospital scheme." This sounds very good. We cannot blame any group of workers who may desire to make this provision. But provided that everyone pays his share according to his means, there ought to be no necessity for any group of persons to bargain for, or attempt to purchase, preferential facilities. That many people find it to be necessary should make us realize the urgent need for a forward policy in hospital administration which will place hospital services on an equality with industry in respect of efficiency. The

[1] *The Social Aspects of Rationalization.* International Labour Office. London: P. S. King and Son, Ltd. (8s.)

[2] *The Introduction of a Works Welfare Scheme: Some Practical Suggestions.* Industrial Welfare Society, 51, Palace Street, Westminster, S.W.1.

British Medical Association's hospital policy retains all that is best in the voluntary system, while at the same time it ensures a harmonious and scientific unification and development which will make adequate provision for all.

The true aim of welfare work in industry is not paternalism, but is an attempt to place all dealings with labour on a basis best described as scientific humanism. It is the means, under whatever name one likes, of adjusting man in health and happiness to the service and mastery of industrial civilization. This is a problem of national importance, and it demands from all engaged in the work a broad cultural background against which modern problems can be placed and viewed in their proper perspective. Recent research points to the importance of temperament both in respect of efficiency for work and proneness to incapacity, though this is but one of many complex matters calling for clear analysis in each personal problem. Health, to a far greater extent than many are as yet prepared to admit, is dependent on the interplay of psychological forces, and not only medical practitioners but all connected with the management of personnel need to realize their importance. The inculcation of scientific method is essential for all who aspire to lead in the world of men and women, and nothing can so successfully achieve this as a grounding in biology. This should not aim at turning out technologists, but rather men and women who will later on find themselves at home in the realm of scientific ideas as applied to living creatures. Our civilization is founded on industry and commerce. The problems that arise are the result of interactions between human beings and their environment with relative degrees of successful adaptation. It is for us to understand that many of the ills of humanity to-day are due to maladjustments which can only be understood if we know something of the underlying processes, can only be treated if we take account of psychological reactions, and can only be prevented if we co-operate with all concerned in making an inevitable period of transitional disturbance as smooth as possible.

OPERATIONS FOR UTERINE PROLAPSE

The operative treatment of severe degrees of prolapse varies considerably in different gynaecological schools, and, while there is fairly general agreement as to the measures to be adopted for mild types of vaginal and uterine prolapse, the surgical treatment of advanced forms is not by any means marked by uniformity. Hortolomei and Burghele,[1] reviewing the methods employed, come to the conclusion that the most important part of operative treatment is efficient perineorrhaphy, whatever the degree of the prolapse may be, and they put forward the suggestion that further procedures are in most cases redundant. It is unlikely that anyone will dispute the supreme importance of perineorrhaphy in cases of this type, and the inclusion of this operation in most methods of surgical treatment for prolapse is conclusive evidence in its support. On the other hand, many gynaecologists are familiar with patients who are not cured and only imperfectly relieved by simple perineorrhaphy, and it is in such instances that there is severe difference of opinion. For example, certain of the London schools favour ventrifixation combined with perineorrhaphy and colporrhaphy, whereas in Germany, America, and the north of England it is considered unnecessary to open the peritoneal cavity. The present-day tendency is to replace ventrifixation by extended vaginal operations of the type introduced by Fothergill. It must not, however, be supposed that ventrifixation is an operation to be condemned ; for certain cases the results are almost ideal. The impression obtained from recent contributions[2] [3] to the study of the treatment of prolapse is that each case must be treated on its merits, and that all patients do not respond to fixed and routine procedures.

It is doubtful if all the causal factors of uterine prolapse are known: in fact, it is surprising how few original investigations have been undertaken on this subject. There has been much hypothesis and supposition, but few contributions comparable to the work of Halban and Tandler have ever been made. For teaching purposes it is sufficient to talk of trauma during parturition, and to emphasize perineal tears and the application of forceps prior to the full dilatation of the cervix. More exact information should be demanded, however, by the operating surgeon, for the other contributory factors may determine whether the operative treatment carried out is the most satisfactory measure. To cite one instance, in cases of severe trauma, such as complete perineal tears, it is exceptional for prolapse of the vaginal walls and uterus to exist. Again, why is it that so many patients first complain of prolapse when they reach the menopausal age? The upholders of the muscle theory are clearly mistaken when they insist that damage to the musculature of the pelvic floor is the sole cause of prolapse, for occasionally one sees prolapse in elderly virgins. The asthenic factor in the causation of prolapse has probably been underestimated, and for patients of this type perineorrhaphy and ventrifixation are not always satisfactory methods of treatment. Similarly, ventrisuspension and ventrifixation for uncomplicated cases of this kind are usually unnecessary. A plea may therefore be put forward that prolapse cases should not be regarded merely as physical defects to be operated upon, but that more pains should be taken to assess the exact causation, and that operative treatment should be adapted to rectify these faults.

Of the vaginal operations, the most satisfactory are those based on the method of Fothergill. Interposition, vaginal fixation, and Mayo's operation all have their place in selected cases. The ideal state of affairs would be for an operating gynaecologist to have all these procedures in his repertoire, to apply them according to the needs of the individual patient, and not to employ

[1] Hortolomei and Burghele: *Gynécol. et Obstét.*, April 1932, xxv, 277.

[2] Miller, Jeff: *Surg., Gynecol. and Obstet.*, 1932, liv, 693.
[3] Luker, S. Gordon: *British Medical Journal*, 1931, ii, 1171.

a routine method for all severe cases. Halban's operation for prolapse, recently described by Mestitz,[1] is a very complicated manœuvre, which combines the essential features of Fothergill's operation with suture of the fundus of the uterus to the bladder through the utero-vesical pouch. The theoretical basis of the operation is sound, but rather extravagant therapeutic claims are made on its behalf. The important feature is that Halban now directs attention to the fascial tissues of the pelvis. This suggests that the causation of prolapse is being attributed to defects both of the fascial tissues and of the muscles of the pelvic floor, a point of view different from that originally held by the Vienna school.

POST-VACCINAL ENCEPHALITIS

In the current number of the *Archives of Disease in Childhood*[2] an article by Professor A. Eckstein will attract the attention of all who are interested in the problem of encephalitis following vaccination. The occurrence of encephalomyelitis in a recently vaccinated patient was first observed by Turnbull in 1912, and since then many other cases have been reported in which the causal relation between vaccination and encephalitis has been established. Turnbull and McIntosh[3] gave a full and comprehensive account of the clinical and pathological findings in 1926. They demonstrated that the histological changes in the central nervous system, while similar to those found in poliomyelitis and encephalitis lethargica, yet showed definite characteristic differences. Turnbull and McIntosh also drew attention to the perivascular softening of the white matter in cases of vaccination encephalitis, a condition not found in encephalitis lethargica or poliomyelitis. Perdrau, in the report of the Rolleston Committee to the Ministry of Health, pointed out that this demyelination occurs in the nervous complications of small-pox and other acute infectious diseases. He also observed that the perivascular demyelination characteristic of post-vaccinal encephalitis was the same as that found in the early and acute cases of disseminated sclerosis, in the latter condition the lesion being progressive. It will be remembered that the Rolleston Committee did not regard the vaccinia virus as "the *sole* cause" of the nervous complications of vaccination, and stated that "it is our considered opinion that the co-operation of vaccinia with the viruses of poliomyelitis or of encephalitis lethargica or possibly some unknown neurotropic virus harboured by a vaccine must for the present be retained as a working hypothesis of causation, pending further research into the nature and properties of neurotropic viruses in general." Professor Eckstein, however, does not think that the activation theory will hold water, and incriminates the "vaccinations themselves" as the cause of the condition. In conjunction with other workers he has succeeded in showing that even in normal persons the vaccine virus can be demonstrated in the blood between the third and tenth days, especially between the sixth and the eighth day, after vaccination. Vaccination, in other words, results in a generalized infection. The virus was absent from the cerebro-spinal fluid of the normal persons examined, but was found in five cases with involvement of the central nervous system. In one case the injection into a rabbit of the cerebro-spinal fluid of a child with post-vaccinal encephalitis was followed by encephalitis in the rabbit. In experiments on monkeys it was shown that a typical "meningo-myelo-encephalitis" was associated with the presence of the vaccinia virus in the cerebro-spinal fluid. Professor Eckstein, as the result of these and other observations, states that "the view gains ground that the vaccine virus itself is to be regarded as the actual cause of the complications." Why some people are affected and not others is to be explained, he said, by individual disposition. Contrary to what obtains in some European countries, vaccination is still legally compulsory in Germany; there is no "conscience clause." There has been no alteration in vaccination technique, although one or two incisions only are often made, vaccination being considered successful if one pustule takes.

[1] Mestitz: *Surg., Gynecol. and Obstet.*, 1932, liv, 663.
[2] *Archives of Disease in Childhood*, June, 1932. Published by the British Medical Association.
[3] Turnbull, H. M., and McIntosh, J.: *Brit. Journ. Exper. Pathol.*, 1926, vii, 181.

RADIUM THERAPY IN CANCER

The statistical report of the Mount Vernon Hospital at Northwood for the years 1930 and 1931 is a brief document of thirteen pages, of which seven are devoted to some excellently arranged tabular matter. In the first part is given a brief account of the techniques adopted in the radium treatment of malignant disease of the tongue, breast, and uterus. In carcinoma of the tongue, the primary growth is treated by the insertion of radium needles through the mouth; this is followed by treatment of the lymphatic areas. If no palpable glands are found, surface radiation is employed. If palpable glands are present which are operable, they are removed by block dissection, given suitable conditions. When removal of glands is not considered advisable, open or closed needling is used. In both cases treatment by surface radiation follows within twenty-eight days. Inoperable glands are treated by *x* rays, followed either by needling or by the surface application of radium. In carcinoma of the breast various methods are under trial. They roughly fall into two groups according as the interstitial radiation is or is not followed by a surface radiation from radium plaques. The treatment of carcinoma of the cervix uteri has been the subject of careful consideration, and the general conclusion arrived at has been that a modification of the Stockholm technique holds out the best chance of success. The vaginal application is made on three occasions, a week's interval being left between the first and second, and the second and third, applications. The intrauterine container holds two tubes in tandem (each containing 25 mg. radium element—screenage 1.5 mm. platinum plus rubber). The vaginal application is made by means of ten tubes, each of 6.25 mg., in a "butterfly" pessary, the total filtration being again 1.5 mm. of platinum plus rubber. It is noted that *x*-ray pictures show that such a "butterfly" pessary holds the radium in position much better than is the case when the radium is contained in silver boxes packed into the fornices. The *x*-ray treatment follows as soon as the local condition is sufficiently healed; this is usually six weeks to two months after the radium treatment. Six fields are irradiated,

receiving 600 *r* units ; the voltage through the tube is 200 kV. In some cases intra-abdominal radiation by means of radium is employed as soon as the local condition has healed. The abdomen is opened, and needles, containing 2 mg. of radium element each, are attached to the parietal peritoneum right round the pelvis from one sacro-iliac synchondrosis to the other. The walls of the platinum needles are 0.5 mm. in thickness, with an active length of 32 mm. Usually fourteen to sixteen needles are used behind the uterus, and four to six in front. The abdomen is closed for seven days, when it is reopened and the needles are removed. A new method of application has been devised by which 1 mg. radium units are enclosed in the links of a chain. By this method it is possible to withdraw the radium through punctures far out on the abdominal wall. The tabular summaries are very complete, and a carefully planned series of symbols enables one to see at a glance the exact method of treatment which has been used in each case.

CHEMICAL WARFARE AND DISARMAMENT

The Disarmament Conference at Geneva, which has been carrying on its work through special committees, set up a committee of representatives of fourteen States, under the chairmanship of M. Pilotti of Italy, to inquire into chemical and bacteriological means of warfare from the point of view of qualitative disarmament. The revised report of the committee, on which the British representatives consisted of four members of the Services and one civilian, has just been received. The committee first agreed unanimously that chemical warfare came into the category of weapons threatening to civilians, and then considered what should be included in the general definition of chemical methods. The definition at which it arrived includes all harmful substances, whether natural or synthetic, whatever their state, whether solid, liquid, or gaseous. Thus, poisons such as curare or snake poison are brought in. The committee was unwilling to undertake the enumeration of the various categories of substances according to their chemical composition, and adopted as its criterion the physiological effects of the substances on living creatures. It did not differentiate between degrees of harmfulness of these substances, believing that if certain gases less pronouncedly harmful were excluded the practical value of the system would be weakened. One delegation suggested an exception in the case of lachrymatory gases, which for police purposes might not be open to objection, and might indeed be a means of averting bloodshed ; but the committee, while appreciating this point of view, remained of opinion that lachrymatory gases should not be considered separately, and that its resolutions should apply to all gases without discrimination. It excluded explosives from the definition, although the combustion of explosives may cause the discharge of noxious substances, such as carbon monoxide, having destructive effects, but it condemned any practice designed to increase the discharge of such substances by introducing certain products into the explosives or adopting special methods of manufacture. Smoke and clouds were also excluded, since these are used as a screen or for signalling, but here again the smoke and clouds must not be capable, in normal conditions of use, of producing harmful effects upon the organism. The committee's resolution upon the whole subject was:

> " That there should be included in qualitative disarmament the use, for the purpose of injuring an adversary, of all natural or synthetic noxious substances, whatever their state, whether solid, liquid, or gaseous, whether toxic, asphyxiating, lachrymatory, irritant, vesicant, or capable in any way of producing harmful effects on the human or animal organism, whatever the method of their use."

" Qualitative disarmament " means the absolute prohibition in all States of the possession or use of certain selected classes of weapons, or the setting up of a general convention to internationalize them. With regard to bacteriological weapons, these, in the committee's view, unquestionably constitute a method of war most threatening to civilians, causing epidemics, which attack all human beings indiscriminately, and revolting the conscience of humanity more than any other means of warfare. It declares:

> " That all methods for the projection, discharge, or dissemination in any manner, in places inhabited or not, of pathogenic microbes in whatever phase they may be (virulent or capable of becoming so), or of filter-passing viruses, or of infected substances, whether for the purpose of bringing them into immediate contact with human beings, animals, or plants, or for the purpose of affecting any of the latter in any indirect manner—for example, by polluting the atmosphere, water, foodstuffs, or any other objects—should be included in qualitative disarmament."

The committee also considers that the use of incendiary projectiles involves a particularly grave menace to civilians, and that projectiles specifically intended to cause fires should be included in qualitative disarmament. An exception is made in the case of projectiles specially constructed to give light, projectiles capable of producing incendiary effects accidentally, and also projectiles designed and used exclusively for defence against aircraft. Flame projectors, which are calculated to cause needless suffering, come under the same ban. It is open to question, of course, how far these, like other prohibitions which may eventually be embodied in a convention, will be observed by a desperate belligerent. There is a good deal of force in an observation which the Soviet delegation specially asked to be inserted in the report of the committee, to the effect that such legal prohibitions are inadequate, and that the paramount importance should be attached, not to prohibiting the use of chemical weapons in war time, but to prohibiting preparations for chemical warfare in peace time. The committee felt that this did not come within its terms of reference. The mischief is that many or all of these compounds, appliances, and devices are only weapons of war by virtue of the use that is made of them, and they may be made or employed with a view to entirely different, essentially peaceful, and often most beneficial uses. It is difficult to see a solution, apart from the closing of all chemical and bacteriological laboratories, a necessary corollary of which would be the prohibition of the manufacture of agricultural implements, because on the outbreak of war ploughshares have been beaten into swords. Who can separate the wheat from the tares, especially when they are the same plant, which only takes on its tare-like qualities in time of war?

LIMITATIONS OF ULTRA-VIOLET THERAPY

An interesting survey of ultra-violet therapy in dermatology has recently been made by Dr. George M. MacKee of New York and published under the aegis of the Council on Physical Therapy of the American Medical Association,[1] and it may therefore be regarded as an authoritative pronouncement on the subject embodying the experience and conclusions of the most competent members of the medical profession in America who practise ultra-violet light therapy. The conclusions arrived at are indeed very similar to those of Dr. C. B. Heald, which were published in the *British Medical Journal* three and a half years ago.[2] Both he and Dr. MacKee are far less impressed with the value of ultra-violet light radiation in dermatology than are the lay public as a whole and even many general practitioners. Dr. MacKee states that, while there is enough evidence to justify the belief that ultra-violet radiation is a valuable remedy for erysipelas and for certain types of cutaneous and subcutaneous tuberculosis, and is also at times useful in the treatment of acne vulgaris, adenoma sebaceum, pityriasis rosea, para-psoriasis, psoriasis, telangiectasia, indolent ulcers and wounds, and port-wine stains, these conditions pretty well cover the whole field of its usefulness in dermatology. All dermatologists are agreed that in eczema ultra-violet therapy is likely to do more harm than good, though there are certain chronic forms in which it may sometimes be cautiously attempted, and in chronic neuro-dermatitis of the circumscribed type a full erythema dose may be followed by improvement, though not by any means invariably. On the other hand, in the disseminate type of neuro-dermatitis it is extremely dangerous and often makes the patient worse, even in very small doses. It is true that many of these patients improve when able to indulge in heliotherapy, but it is scarcely ever possible to determine whether the improvement is due to a combination of factors such as rest, contentment, aeration of the skin, change of climate, etc., or to the ultra-violet fraction of the sun's rays. Among lay people ultra-violet radiation has a great reputation for the treatment of pruritus, both generalized and localized, but dermatologists are far from being impressed with the results obtained, and there is no doubt that erythema doses may actually increase the discomfort of the patient. In some ways Dr. MacKee assigns to ultra-violet radiation an even smaller place in the dermatologist's armamentarium than Dr. Heald, for he thinks less of it than Dr. Heald in the treatment both of alopecia areata and of furunculosis. The general consensus of opinion seems to be that the real field for ultra-violet radiation is the treatment of tuberculosis of the bones, joints, glands, and skin—in other words, the "surgical" variety of this protean disease—and especially perhaps for the purpose of fortifying weakly and delicate children and adults whose history or environment suggests that they may become its victims. This alone affords an opportunity of very great importance for the development of ultra-violet therapy, but the expectations which have been formed in the public mind of its efficacy in a miscellaneous congeries of disorders must be doomed to disappointment.

[1] *Journ. Amer. Med. Assoc.*, April 30th, 1932, p. 1553.
[2] *British Medical Journal*, January 19th, 1929, p. 94.

TUBERCULOSIS OF BOVINE ORIGIN

A meeting to consider the People's League of Health's report and recommendations on tuberculosis and the milk supply will be held at the Mansion House on Monday next, July 11th, at 3.15 p.m., under the chairmanship of the Lord Mayor of London. The speakers will include Lord Dawson of Penn, P.R.C.P., Lord Moynihan of Leeds, P.R.C.S., Viscount Burnham, the Lord Mayor of Manchester, and Dr. W. G. Savage, medical officer of health for the county of Somerset, who succeeded the late Mr. E. B. Turner as chairman of the special committee which issued the report (see *British Medical Journal*, April 2nd, p. 618). The subcommittee set up to consider the available methods for combating tuberculosis of bovine origin reported that in its opinion the time had now come when pasteurization should be adopted on a larger scale. To this end it suggested that the Ministry of Health should draw up milk regulations for adoption by the larger urban authorities, requiring (1) that all milk sold within the jurisdiction of the authority should either come from tuberculin-tested herds or be efficiently pasteurized; (2) that no milk treated by heat other than by the official process of pasteurization should be imported into the area; (3) that there should be compulsory classification of all grades of milk sold within the area; and (4) that adequate supervision and control over the health of all persons engaged in the production and distribution of milk should be secured.

CHARITIES MEETING

During the Centenary celebrations of the British Medical Association a meeting in connexion with medical charities will be held at the Association's House, Tavistock Square, W.C., on Monday, July 25th, at 3 p.m., under the chairmanship of Sir Thomas Barlow, Bt., president of the Royal Medical Benevolent Fund. The object of the meeting is to bring the claims of the great charities of the profession to the notice of members attending the Centenary Meeting, and to invite suggestions as to any possible new lines of work. The following speakers will briefly state the claim of the bodies in which they are specially interested: Dr. C. O. Hawthorne, on behalf of the Royal Medical Benevolent Fund; Dr. Henry Robinson, Epsom College; Dr. Alfred E. Boyd, Royal Medical Benevolent Fund Society of Ireland; Lady Cheatle, Royal Medical Benevolent Fund Guild; Dr. C. E. Douglas, B.M.A. Charities Committee; and Dr. Alfred Cox, Sir Charles Hastings Fund. A cordial invitation to be present is extended to all interested in any of the medical charities.

THE HALF-YEARLY INDEXES

The usual half-yearly indexes to the *Journal* and to the *Supplement* and *Epitome* have been prepared and will be ready shortly; they will, however, not be issued with all copies of the *Journal*, but only to those readers who ask for them. Any member or subscriber who desires to have one or all of the indexes can obtain what he wants, post free, by sending a post-card notifying his desire to the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1.

The First Hundred Years

NOTES ON THE ASSOCIATION'S HISTORY

THE British Medical Association, which was founded at Worcester on July 19th, 1832, by Sir Charles Hastings, celebrates its centenary at the close of this month, under the Presidency of Lord Dawson of Penn. We print below the eighth of a series of advance extracts from the "History of the Association," compiled by Mr. E. Muirhead Little, F.R.C.S., at the invitation of the Council, for publication in book form at the time of the commemorative proceedings in Worcester and London. The concluding article of the series, on the Association's Journal, will appear in our special Centenary Number, to be published on July 23rd.

THE ASSOCIATION AND QUACKERY

In its early days the Provincial Medical and Surgical Association advocated the prohibition of all medical and surgical practice except by legally qualified persons, but it very soon became evident that this was an object impossible of attainment. Since 1840 the numerous Bills proposed or supported by the Association have not contained clauses designed to forbid unqualified practice. It is, however, worthy of remark that of late years, without much notice or resistance, the legislature has passed measures absolutely forbidding the practice of midwifery, of dentistry, or the treatment of venereal diseases by unqualified persons, and no one may now call himself or herself a veterinary surgeon without legal qualification. All other departments of medicine and surgery are freely open to every man, woman, or child in Great Britain, provided that the unqualified practitioner does not attempt to prescribe or administer drugs included in the operation of the Dangerous Drugs Acts or infringe the provisions of the Medical Act by representing himself to be a registered medical practitioner. As may well be imagined, the ingenuity of the unqualified practitioner is frequently and successfully exercised with the view of infringing the spirit of the latter restriction while keeping inside the letter of the law.

The discussion which took place at the Annual Representative Meeting in 1930 on the report of the action of the Association's representative (Dr. Alfred Cox) at the previous conference of the Association Professionnelle Internationale des Médecins showed that there is no change in the public attitude on this matter, and no likelihood of any legislation on it in this country. Moreover, it was stated at the conference that in those countries where unqualified practice was forbidden by law it nevertheless flourished, and quackery was quite as rife as in countries which, like Great Britain, made little or no attempt to restrain it. The subject must be considered as outside practical politics. Dr. Cox said that personally he did not believe it was possible to suppress the desire of human nature for quackery. Almost unanimously the Representative Meeting approved the opinion expressed by Dr. Cox at the Paris meeting as to the impracticability of any attempt to put down unqualified practice by means of legislation.

Before the passing of the Medical Act a Committee on Quackery was appointed, which in 1851 presented a report condemning the practice of homoeopathy. In more recent years a wider view has been taken, and it has been realized that in medicine there is no orthodox doctrine, but that when once a man has obtained a registrable qualification in the usual way he is entitled to hold his own opinions on therapeutics.

SECRET REMEDIES

But the sale of remedies of secret composition and their apparent legitimization by the imposition of a Government tax and stamp has been denounced by the Association from its very early days. In 1839 a Committee of the Provincial Medical and Surgical Association on Quackery pointed out that the revenue derived by the Government from this source amounted to £50,000 per annum. It recommended the delivery of lectures on empiricism and the circulation of tracts. In 1841 the Committee on Empiricism recommended the abolition of patents for *secret* remedies and of the tax upon them. In 1840 the report had run:

"Your committee would suggest the propriety of appropriating a part of the funds of the Association in obtaining trustworthy analyses of many of the more popular and injurious quack medicines."

Sixty-nine years later this suggestion and subsequent ones were acted upon, when a series of articles on the composition and cost of secret remedies appeared in the *Journal*, and these articles were republished in book form in 1909 under the title *Secret Remedies, What they Contain and What they Cost*. This volume had a very considerable sale, and no doubt had a good effect in opening the eyes of the more sensible of the lay public, so that they realized how slight were the grounds upon which the proprietors of so-called patent medicines based their claims to therapeutic success. That volume was followed by another, *More Secret Remedies*, which was published in 1912.

The Association has more than once urged upon the Government of the day the desirability, in the interests and for the protection of the public, of making the publication of the composition of every secret remedy compulsory by an enactment that the names of the ingredients and their quantities should be printed on the labels of all so-called "patent" medicines. The analyses made for the Association in the investigations which led up to *Secret Remedies* showed how widely the composition of the same nostrum often varied at different times. In the frequent cases where their components were practically inert, this did not much matter, but in the case of others containing active drugs such as opium and acetanilide it constituted a grave danger to the public. This glaring defect was, however, used by some proprietors of the remedies as an argument to discredit the analyses published by the Association, for they were able to show that these analyses in some cases differed from those made of specimens of preparations purchased at another time, or perhaps in another place. *Secret Remedies* and its sequel, however, showed conclusively with how little care and regard to accuracy many preparations had been made up. In the case of pills and powders variations in strength could be and were clearly demonstrated.

Only one action was brought against the Association on account of these publications, with the result of a verdict for the defendants. Nevertheless, the trade still goes on and flourishes, and no administration seems likely to forgo the income derived from that source, although it may be hoped that publication of the formula of composition on the label may some day be insisted upon as a condition before the Government stamp is affixed. In that case, secret remedies would cease to be secret and would lose most of their power to impose on the credulous.

SELECT COMMITTEE ON PATENT MEDICINES

In 1912 the Government appointed a Select Committee to consider and inquire into the question of the sale of patent and proprietary medicines and medical preparations and appliances and advertisements relating thereto, to which the Association forwarded a Memorandum of Evidence. In support of this evidence the following witnesses appeared before the committee: Sir Malcolm Morris, Professor W. E. Dixon, F.R.S., Mr. P. MacLeod Yearsley, Dr. Arthur Whitfield, Miss Mary Sturge, Dr. R. E. Crosse, Mr. Henry Sewill, Mr. E. F. Harrison, F.I.C. (responsible for the analyses in *Secret Remedies* and *More Secret Remedies*), and the Medical Secretary.

The Select Committee reported in August, 1914, and made certain recommendations, which the Council considered to be "of the most far-reaching and satisfactory kind." They included the registration of all proprietary

remedies on the basis of confidential communication to a competent authority of the formula of every remedy, a full statement of the therapeutic claims made or to be made and, in the case of appliances, the deposit of a specimen: the administration of the law governing the sale and advertisement of proprietary remedies, including the new machinery, to be a function of the Ministry of Public Health, "when such a body is created," and in the meantime of the Local Government Board. Other recommendations of the committee included the amendment of the Indecent Advertisements Act on the lines suggested by the Association, and the total prohibition of the advertisement and sale (except the sale by doctor's order) of medicines purporting to cure the following diseases: cancer, consumption, lupus, deafness, diabetes, paralysis, fits, epilepsy, locomotor ataxy, Bright's disease, and rupture (without operation or appliance). The prohibition of all advertisements of remedies for sexual diseases and of medicines which suggest that they might be used as abortifacients was also recommended, as well as measures for frustrating many well-known knavish tricks of the nostrum-mongers. The Select Committee expressed its strong desire that there should be early and effectual legislative measures taken to bring into operation the foregoing recommendations.

High hopes were then entertained that a Bill would soon be introduced and passed into law, giving effect to the recommendations, but the continuation of hostilities and the events which followed the armistice and even the official end of the war in 1921 prevented the fulfilment of the hopes of the committee and of the Association. The Government introduced and passed through the House of Lords in 1920 a Bill to regulate the manufacture and sale of certain medicines and surgical appliances, but it never got any further, owing, it is understood, to the difficulty of reconciling the various vested interests concerned. It can, however, be safely said that the action of the Association, coupled with the new sense of responsibility which is actuating many educated advertising agents, has led to a considerable improvement as regards the grosser forms of quack advertisement.

THE NEW "BRITISH PHARMACOPOEIA"

Completion of Work of Revision

The *British Pharmacopoeia, 1932*,[1] is now through the press, and after it has been laid on the table for three months, in accordance with prescribed procedure, it will be published on September 30th. On that date a notice will appear in the *London Gazette* stating that the new compilation supersedes all former issues. The volume is the sixth of its series since the Medical Act, 1858, enacted that the General Medical Council should cause to be published "a book containing a list of medicines and compounds, and the manner of preparing them." It follows the style of the *British Pharmacopoeia, 1914*, but it contains 763 pages as compared with the 633 of its predecessor. Its price is one guinea, which is double the price of the previous edition, but the increased costs of production fully justify the excess.

The Pharmacopoeia Commission and its Task

The work is the outcome of the labours of the Pharmacopoeia Commission for three and a half years. The Commission has been assisted by six subcommittees, through which the services of a large number of experts in the clinical, pharmacological, and pharmaceutical fields have been enlisted. Close contact has been maintained with the corresponding American authority, and the Commission, having in mind the position of practitioners in Canada, and the fact that the work is intended for the whole British Commonwealth of Nations, has gone a long way, in nomenclature and in other respects, to bring it into relation with the *U.S. Pharmacopoeia*, 10th revision, 1925. In the States the work on the revision which will appear in 1935 is now proceeding. A ten years' interval is regarded as convenient on both sides of the water between national issues of the *Pharmacopoeia*, and it is hoped that in future the issue of the British and the American publications will alternate every five years. The next *British Pharmacopoeia*, in that event, would appear about 1940. Hitherto the successive revisions in this country have been made at irregular intervals, the years of issue being 1864, 1867, 1885, 1898, 1914, and 1932, although supplementaries have been published in the intervening periods.

The new *Pharmacopoeia* opens with a general preface, in which the action of the General Medical Council in setting up and instructing the Commission is recounted. Then follows a lengthy introduction explaining the principles that have guided the Commission in its task. A list is next given of 128 articles and preparations included in the new edition but not to be found in its predecessor, together with a much larger list, extending to some 360 items, of articles that were included in 1914 and have now disappeared. Several pages are devoted to general notices, which are intended to interpret the monographs, and finally come the monographs themselves, covering 470 pages.

How the Information is Presented

Each of the monographs gives, first, the Latin title (for example, acetum scillae), the official abbreviation (acet. scill.), the English name (vinegar of squill), the synonyms, if any, the chemical formulae and molecular weights, if known, an indication of the source (which the law requires to be given), the characters of the preparation, the tests for identity, the tests for purity, the assay, and the doses, which last are intended merely for general guidance, and not authoritatively enjoined as binding upon practitioners. After the doses of nearly all the preparations for potent drugs, there have been added—what have never appeared before—notes for prescribers, the purpose of which is to indicate what amount of active principle is in the minimum dose of the preparation being used. For convenience, alternative preparations, which were formerly given in the appendix, now appear in the monographs.

The new *Pharmacopoeia*, with the object of simplifying prescribing, recommends that the symbol ʒi, often used to represent 60 grains and also 1 fluid drachm, and the symbol ℥i, sometimes used to represent 480 grains, sometimes 437.5 grains, and also 1 fluid ounce, should be discontinued, and that, instead, when the imperial system is employed, solids should be prescribed in grains (gr.) and ounces (oz. = 437.5 grains), and liquids in minims (♏) and fluid ounces (fl. oz.), and that quantities should be written in Arabic numerals. In order to avoid the possibility of confusion between gram and grain the symbol G should be used as the contraction for gram. For all processes, chemical and pharmaceutical, the metric system of weights and measures is employed, weights being given in multiples or fractions of a gram or of a milligram, and fluid measures in multiples or decimals of a millilitre. Doses, however, are expressed not only in the metric system, but in the imperial system also, and attention is drawn to the fact that the relation between the metric and the imperial doses of a given preparation as set forth is of only approximate equivalence.

[1] *The British Pharmacopoeia, 1932.* London: Published by Constable and Co., Ltd., for the General Medical Council.

DISCARDED PREPARATIONS

The policy pursued by the Commission in carrying out its work was explained to our representative by Dr. A. P. Beddard, its chairman, in an interview he was good enough to accord. He pointed out that the *British Pharmacopoeia* is not a formulary of drugs and preparations, but a book of standards. With this in view, a considerable proportion of drugs and preparations appearing in the expiring *Pharmacopoeia*—perhaps as large as 40 or 50 per cent.—has been cut out. An arrangement has been made, however, with the *British Pharmaceutical Codex* (which is an imperial dispensatory for the use of medical practitioners and pharmacists, published by the Pharmaceutical Society) that in the next edition of that work there shall be inserted, with appropriate explanations, the preparations discarded from the new volume, but appearing in that of 1914. These preparations, therefore, do not go on to the scrap-heap, though it is true there will be an interregnum of two years before the new *Codex* containing these articles makes its appearance.

One principle followed in the work of elimination has been to omit drugs on the ground of insufficient medicinal value. All the local preparations used in the tropical parts of the Empire and the Colonies generally have been cut out, because it is thought that these areas should have their own local supplementary formularies, with legislative enactment, if necessary, to make them official. One whole group of medicaments in the shape of hypodermic injections, which appeared in 1914, has been omitted, because it is considered preferable that the practitioner should prescribe the dose of the active material as such, rather than the dose of an official hypodermic injection. The 1914 edition, again, contains several groups of drugs having similar active principles; from each of these groups there has now been selected only what appears to be the most valuable member. The prescribing of combinations of drugs in the form of powders and pills is thought to be a matter which should be left to the individual practitioner, and therefore many such formulae have been omitted, though a few widely used combinations, such as Dover's powder, Gregory's powder, and black draught, have been retained. The wines given in the 1914 edition have been omitted in conformity with the article of the international agreement, 1930, for the unification of pharmacopoeial formulae for potent drugs, which requires that no potent drug shall be prepared in the form of a medicinal wine. Infusions, so far as they have been retained, have been renamed as fresh infusions, aromatic waters as distilled waters, and the word "solution" has replaced "tincture" in relation to iodine, again in conformity with the international agreement, which requires that simple solutions of chemical substances shall not be named tinctures.

INCLUSIONS AND INNOVATIONS

One new introduction is ointments for the eye. Another is a group of materials, such as barium sulphate, used mainly for diagnostic purposes. Yet another is industrial methylated spirit, the use of which is permitted, under definite conditions, for the preparation of certain specified liquids intended for external use, and in the preparation of certain medicines for internal use if the material is so treated as to eliminate methylated spirit from the final product. The appearance of many new therapeutic agents since the last revision is reflected in the inclusion of insulin and pituitary extract, amongst others. Dr. Beddard thought that some surprise might be felt because the dose of pituitary extract is given in units only, and not in volume at all, but he said this had been done deliberately for the reason that the medical profession had got into the habit of prescribing pituitary extract by volume, but was unaware of the fact that there were on the market two entirely different strengths turned out by different manufacturing chemists. Consequently, when 1 c.cm. of extract was given, the practitioner might be giving either 5 units or 10 units. No agreement with the Americans has been reached regarding the strength of pituitary extract, and therefore it is necessary to describe pituitary in units, no matter what the volume containing these units.

With regard to digitalis (the use of a concentrated infusion of which, by the way, is not sanctioned), Dr. Beddard said that the Commission would have liked to describe all the preparations of digitalis in units, but it was thought that the medical profession was not quite prepared for that; therefore doses of digitalis have been indicated both in units and in volume. Of the vitamin preparations, only one, apart from cod-liver oil, appears, —namely, ergosterol—the reason for its appearance being that it is capable of standardization. Only two vaccines are included—namely, vaccinum vacciniae and the ordinary typhoid and paratyphoid vaccine (T.A.B.). Another addition to the *Pharmacopoeia* is cinchophenum, and yet another, totaquina, the latter at the instance of the League of Nations Health Committee.

One of the difficulties of a Pharmacopoeia Commission is that so many drugs come into fashion and go out, and the boom level may correspond with the issue of the *Pharmacopoeia*, so that the revisers have either to do violence to their conservative instincts if they include the new preparations, or to be prepared for criticism if they do not. The Commission has, however, ruled out speculative inclusions, and in so doing can claim to have acted in accordance with the traditions of British medicine and with the policy of the General Medical Council. Any large amount of criticism ought to have been forestalled by the expert help and opinion from innumerable bodies and individuals which the Commission has enlisted, but in any case the Commission remains in being until September of next year to deal with any matters that may arise on the publication.

The members of the Commission are Dr. A. P. Beddard (chairman), Mr. R. R. Bennett, Dr. J. H. Burn, Professor F. R. Fraser, Professor H. G. Greenish, Professor J. A. Gunn, and Mr. T. Tickle, with Dr. C. H. Hampshire as secretary.

A STUDY OF MIGRATION

Dr. F. H. A. Marshall of Cambridge, in his preface to an extremely interesting and stimulating book by the late Walter Heape entitled *Emigration, Migration and Nomadism*,[1] recalls the fact that Heape, after having devoted a considerable part of his energy and life to the investigation of the comparative physiology of generation and sex, in later years turned his attention to wider though germane problems, including growth and related processes. Among his papers at his death the essay now published, which he himself had decided to detach from his main thesis, was in an advanced state of preparation, and awaited only final revision and publication. At the request of Mr. Rodney Heape the work of revision and arranging publication was undertaken by Dr. Marshall, who has added many valuable footnotes.

In this essay Heape's aim was not to discover and present facts which may have escaped the attention of zoologists, but to collate a variety of well-known observations for the purpose of enlarging the basis for an

[1] *Emigration, Migration and Nomadism.* By the late Walter Heape, M.A., F.R.S. Edited with a preface by F. H. A. Marshall, Sc.D., F.R.S. Cambridge: W. Heffer and Sons, Ltd. (12s. 6d. net.)

extended knowledge of the subjects dealt with, and also to stimulate research in this field. It will do both, especially in the direction of stimulating inquiry in promising fields of research. Here, practically for the first time, a fundamental distinction is drawn between the various kinds of " migratory " movements among animals, and an attempt is made to correlate these movements with the different kinds of physiological stimuli which the author supposes give rise to them, these stimuli being connected with the two primitive systems of the body—the alimentary system on the one hand and the generative on the other.

" I have endeavoured," he says, " to indicate the paramount influence which physiological processes exert on the source of all voluntary movements . . . and have pointed out that those movements which are undertaken in search of food or water, or in order to escape from unfavourable climatic conditions, what I have called ' alimental ' or ' climatic ' movements, are prompted by purely individual physiological needs concerning only the life of the individual ; whereas those movements which are concerned with breeding, what I call ' gametic ' movements, are impelled by impulses which arise from physiological activity in the reproductive system and concern the life—that is to say the continuity—of the race."

Turning first to his descriptive account and classification of what he terms the " voluntary " movements of animals over wide areas, and which brings under review a wealth of observations by natural historians, he makes out a strong case for his conviction that the " conception of the possession of territory, or of property, one of the most significant attributes of civilization, is inherent in all animals capable of voluntary movement from place to place," and that " territorial rights are universally recognized and almost always strictly respected by all animals except ' raiders,' " in which category must be included men, among whom, he says, the habit of raiding their own species has become a dominant passion. However that may be, it appears to be a fact that the recognition of territorial rights and of the laws which govern them was not evolved by man, but has been an inherent factor in the life of all animals. Further, he shows that while territorial rights extend only over limited areas, which constitute the home of the family, tribe, or species, large tracts of surrounding country are recognized as neutral territory which all, except predacious animals, may frequent at any time in complete amity. Surely Bury was right, he comments, in declining to define the meaning of " progress " in relation to the growth of our civilization!

" GAMETIC MIGRATION "

Using the term " emigration " for movements which entail change of environment but which do not involve return to the original area of habitat, and " migration " for that class of movement which impels migrants to return to the region from which they have migrated, Heape recognizes in both classes three main groups: in the emigratory class, alimental, climatic, and mass emigrations ; and in the migratory class, alimental, climatic, and gametic migrations. His discussions of these types of movements, illustrated by descriptive accounts of the behaviour of animals of many species, vertebrate and invertebrate, are of extraordinary interest, especially perhaps the pages dealing with the mass emigrations, invariably ending in disaster, of the Scandinavian lemming and the springbuck of Great Bushmanland, but naturally his central theme is furnished by the group he names " gametic migration."

The researches of Heape and others have shown that one of the reproductive organs has a twofold function: the gonad is not only concerned with the production of ova or spermatozoa, it is also a growth organ. " Moreover, it is primarily a growth organ ; only secondarily, as an organ, is it concerned with the reproduction of the species." The growth of the secondary sexual characters, for example, is due to a stimulus derived from the endocrine portion of the gonadic glands, and precedes the growth and maturation of the sexual cells. Heape apparently supposed that these organs elaborated a substance common to either sex, which he named " gonadin," but, as Dr. Marshall points out, it is now known that the hormones produced by the gonads are sex-specific, and the ovaries produce at least two secretions and probably one other hormone. Heape further supposed that the reproductive activities are from time to time stimulated by a substance which he suggested was a vitamin, absorbed with the food, not modified by the process of assimilation, but stored up for use as required, and that this vitamin acts first on the thyroid or pituitary, and stimulates these endocrine glands and perhaps others also which govern somatic growth, and then acts on the gonads, inducing them to produce their endocrine secretion, which in its turn stimulates first the growth of the secondary sexual characters and then the growth and full development of the reproductive cells, the " switching over " from active somatic growth to active reproduction taking place in the gonad. The role of these processes in gametic migration—for example, the influence of the " gonadic secretion " on the migration of birds long before the sexual season occurs, or even before the reproductive cells have begun to mature, and other instances of activation fairly remote from reproductive function—are of profound interest.

CANCER AMONG THE INSANE

Of more particular interest to medical men, however, is Heape's idea of a further activity of gonadic secretion.

" There is still another role which I have strong reason to think may be exerted by the secretion of the gonad after the power of the reproductive cells has ceased, after its business as a gametic reproductive stimulant is done. It is quite certain that the endocrine function of the gonad may persist for some time after the capacity for reproduction in an animal has waned, and it is at that time that cancerous growth is specially apt to appear in human beings. I have evidence of considerable interest which bears on this subject, and it is, I think, highly suggestive, *not* as to the cause which induces cancer, but regarding one of the influences which tend to promote its active growth. . . . The data I have collected on this subject induce me to think it is possible that the gonadic excitant, which is unquestionably an active growth excitant, may be one of those ' specific factors ' which Dr. Gye suggests is requisite to co-operate with the ' cancer virus ' in order to induce malignant growth."

In support of this suggestion he quotes certain observations upon the relative infrequency of malignant growth among patients in mental hospitals. He states that in 1910–11 he ventured to assert to Mott his confident belief that it would be found that the ovaries of insane women were degenerate, and that subsequently Sir Frederick Mott found in every case investigated, even in young women who had died shortly after their first attack, the ovaries were degenerated. The author believed that 100 cases were investigated. This observation, coupled with another, also by Mott, that of some three hundred cases in which post-mortem examination showed the presence of gall-stones not one showed malignant growth in the liver, led him to believe that it was " highly probable that the immunity to cancer experienced by asylum patients might well be due to the absence of the gonadic excitant—that is to say, to the degeneration of the gonads." This theory is an interesting one, but so far as the insane in mental hospitals are concerned the available statistical evidence is hardly sufficient to justify the use of the words quoted above. The comparative incidence of cancer in

mental hospitals and in the general population has often been under consideration, and in their report for the year 1909 the Commissioners in Lunacy said: "It would almost appear as if the insane enjoyed some immunity," but they were careful to point out that, while the ratio of deaths from cancer in mental hospitals to the deaths from all causes in mental hospitals was much less than the ratio of deaths from cancer to deaths from all causes in the general population, the ratio of deaths from cancer in mental hospitals per 1,000 living in these hospitals was considerably greater than the death rate from cancer per 1,000 living in the general population. The Infectious Disease Subcommittee of the Royal Medico-Psychological Association, which reported in April, 1930, merely suggests that this question offers a likely field for investigation as to how far the lower proportion in mental hospitals of deaths from cancer is explainable by the very heavy death rates in these institutions from other causes. The obvious explanation would appear to lie in these last few words. But no one can read this book without sharing its author's conviction that the reproductive system plays a far more important part in the history of evolution than is generally recognized.

Scotland

Canadian Doctors in Scotland

Some eighty members of the Canadian Medical Association, with their wives and families, who are on their way to attend the Centenary Meeting of the British Medical Association in London and who are visiting some of the principal cities in this country en route, are expected to arrive in the Clyde on July 12th. They will proceed by motor coach, passing through the Trossachs, to Edinburgh, where arrangements are being made to entertain them on July 13th and 14th. Visits have been arranged to the Royal Infirmary, the laboratories of the University, the Astley Ainslie Institute, the newly opened Hospital for Crippled Children, etc. On the evening of Wednesday, July 13th, the doctors will be entertained to dinner by the Edinburgh Branch of the British Medical Association in the hall of the Royal College of Physicians; tickets for this function, price 10s. each, may be obtained by members of the British Medical Association from Dr. John Young, secretary of the Edinburgh Branch, 2, Mayfield Gardens, Edinburgh. The ladies will be entertained to tea on the afternoon of Wednesday, July 13th, in the houses of local members of the British Medical Association, and in the evening the ladies of the Edinburgh Branch will be "At Home" to them in the Scottish House of the Association, 7, Drumsheugh Gardens, where there will be an exhibition of Scottish music and dancing. The party will proceed to Newcastle on Thursday afternoon.

B.M.A. Luncheon in Edinburgh

Prior to the meeting of the Scottish Committee of the British Medical Association on June 30th, Dr. Alfred Cox and Dr. James R. Drever were entertained to lunch in the House of the Association. Dr. Drever, who recently resigned from the post of Scottish Medical Secretary on account of ill-health, had been presented with a gold watch bearing a suitable inscription and a cheque for £320. Dr. D. Elliot Dickson, chairman of the Scottish Committee, presided, and proposed the health of the guests. Dr. Cox, replying to the toast, spoke of the deep regret with which he laid down his work for the Association. He then referred to the great services which Dr. Drever had rendered to the Association and to the many occasions on which Dr. Drever's advice had been sought. Dr. Drever had never given advice which had not embodied a well-considered opinion. The picture of Lord Lister, to be presented by Dr. C. E. Douglas to the gallery of the London House of the Association, was on view. It was also intimated that Dr. G. Keppie Paterson, a former president of the Edinburgh Branch of the Association, was making a gift to the Scottish House for the promotion and culture of music among the members, and in commemoration of an official connexion with the local Division and Branch for the past thirty years. This handsome gift will include a Steinway grand piano and orchestral stands valued at £120. It was further intimated that Dr. Keppie Paterson would inaugurate the use of these gifts by giving a choral and orchestral concert in November next in aid of the B.M.A. Charities Fund.

Glasgow School Children

In a report to the Education Committee of Glasgow Local Authority, Dr. A. S. M. Macgregor, medical officer of health for the city, has given an account of the medical inspection of school children. The report shows that during the year there were some 191,000 scholars; that boots and clothes had to be provided for 34,359; and that the feeding of children undertaken by the local authority included 64,955 breakfasts, 734,000 dinners, and 55,706 teas. Of 53,565 children examined by the medical officers 27,360, or 51 per cent., showed some defect. While the percentage is somewhat higher than last year it is suggested that this is not an absolute increase but due to a raising of the standard of examination. Statistics in many respects showed an improvement in the physique of the child, and it is stated that the boys and girls nowadays entering schools from whatever social group are appreciably taller and heavier than children of the same age formerly were, and that this gain is substantially augmented during school life. The percentage of children suffering from rickets is the lowest recorded since 1919.

Honorary Degrees at Edinburgh and St. Andrews

At the graduation ceremony of Edinburgh University on June 30th, some 500 degrees were conferred in science, arts, philosophy, and divinity. The Vice-Chancellor, Sir Thomas Holland, presided, and in the course of a short address mentioned that Sir Walter Scott, the centenary of whose death was being celebrated this year, had attended classes for three years, but failed badly in Greek, and had to leave the University without a degree. Out of twelve recipients of the honorary degree of doctor of laws, two were members of the medical profession—David Middleton Greig, M.B., F.R.C.S.Ed., conservator of the museum of the Royal College of Surgeons, Edinburgh, whose recent treatise on the surgical pathology of bone threw new light on the mode of growth and repair of bone, and Arthur Robinson, M.D., F.R.C.S.Ed., professor emeritus of anatomy in the University. At the graduation in St. Andrews University on June 29th the degree of LL.D. was conferred on Dr. Lewis Robertson Sutherland, professor emeritus of pathology.

Hospital for Crippled Children

The third annual meeting of the Edinburgh Hospital for Crippled Children, recently completed at Fairmilehead, and the formal opening for patients, were held on June 28th. Sir David Wallace presented the general report, which recalled that the scheme had commenced at a meeting in March, 1926, held in the Edinburgh City Chambers. It had been decided to build a hospital to accommodate seventy-five patients, and capable of expansion to provide for a further seventy-five. Public interest in the scheme had been aroused, and nearly £100,000 had

been contributed towards the building fund, so that the hospital was being opened that day free of debt. They were indebted to the trustees of the late Mr. Edward Clark, who had given £30,000 towards the funds. The governors would now consider a scheme for the promotion of local clinics, and they looked for the support of committees in the counties which had helped in the preliminary arrangements. Local authorities had indicated their sympathy, and it was believed that they would cordially support the scheme, but considerable voluntary assistance would also be required to manage the detailed work of the clinics.

Ireland

Royal Medical Benevolent Fund

At the annual meeting of the Royal Medical Benevolent Fund Society, held on June 29th, in the Royal College of Surgeons, Dublin, with Mr. Frank Crawley, P.R.C.S.I., in the chair, the committee, in its report, recorded that ninety-five grants were awarded during the year, as compared with eighty-seven in the year 1930–1 ; the sum distributed was £2,426 10s., or £272 more than in the previous year. The total number of beneficiaries was 228 ; this included eight medical men, seventeen orphans, and seventy widows. Nearly two-thirds of the society's income was derived from dividends, and dividends and interest showed an increase of £14 10s. Donations and subscriptions paid through the central treasurer amounted to £226, as compared with £218 15s. in 1930–1, and receipts from branch honorary treasurers amounted to £558 12s. 4d., as against £482 12s. in 1930–1. For this welcome increase the committee desired to thank the branch honorary secretaries and treasurers, as well as the contributing members. The committee felt that a special effort had been made to help their beneficiaries because of, rather than despite, the financial difficulties of the times. Thanks were given to the Irish Medical Association and to the British Medical Association for grants forwarded by them ; and also to the Society of St. Vincent de Paul for the aid given to the society's beneficiaries in administering the grants awarded. Dr. Martin, honorary secretary, County Donegal, moving the adoption of the report and balance sheet, appealed for more help from the members of the medical profession for a fund which was of great value.

National Health Insurance Deficit

The Minister of Local Government and Public Health for the Irish Free State recently discussed this matter with representatives of the approved societies on the National Health Insurance Advisory Committee. He directed attention to the fact that there had been a very heavy increase in expenditure on benefits in the last eight years (£406,700 in 1923 and £742,300 in 1931). This increase was much greater than would be justified by the increase in membership or in contribution income. This increase in expenditure had been under consideration at the meeting of the committee last year, and since then certain steps had been taken by the Insurance Commissioners which it was hoped would check the increase and prevent the payment of benefits to persons who were not entitled under the provisions of the Acts. In the period up to the end of May last, however, there had been a decrease in the amounts required by societies to cover their expenditure. When the results of the third valuation became known it was clear to the Insurance Commission that the financial position of a number of societies had seriously deteriorated since 1923, when the previous valuation had been made. This deterioration occurred even in societies which did not actually disclose a deficiency, and in the aggregate for all societies there was a net loss of £50,000 in the five-year period. It therefore became apparent that if the deterioration continued during the period 1929–33, such societies might be seriously in deficiency when the next valuation was made. The fact that the expenditure had continued to increase in 1929, 1930, and 1931 lent force to this argument, and it was therefore decided to get an actuarial forecast of the position. The forecast had now been received, and it was estimated that the loss of £50,000 experienced in 1924–8 will grow to a loss of £647,000 in 1929–33, and that after exhausting the reserves provided to meet deficiencies under the present financial arrangements made in the Acts (apart from a decrease in statutory benefits or an increase in contributions) an aggregate deficiency of £280,000 will still remain to be met. The matter was one of grave concern, requiring careful consideration, and it would be necessary to take steps to have the provisions of the Acts amended. Otherwise, when the results of the next valuation became known, a number of societies would be called upon to meet heavy deficiencies, for which no provision was available.

Teaching of Hygiene

In his report to the Down County Regional Committee Dr. John Scott has expressed his belief that the question of the teaching of hygiene is not being adequately met: instruction has been perfunctory on all sides and in all respects. To his mind no public elementary school programme, however ambitious its aims, can be called complete or progressive if it does not make provision for ample instruction in the theory and practice of the art of living properly. A definite proportion of the defects, diseases, and other allied conditions discovered is, without doubt, present in many children before they attain the school-going age. That has been due, in a great majority of cases, to parental ignorance, or carelessness regarding the proper up-bringing and care of the young child. Dr. Scott maintains that the time is now ripe for a complete revision of the education of the senior girls attending public elementary schools, with a view to training them in the subjects that will tend to make them better wives and mothers. The State, by virtue of its power to insist upon the attendance of young children at school, has been given a great opportunity for the proper education of its future citizens. On the use made of its powers will depend largely the standard of health of the men and women of the coming generation, and also their degree of enlightenment on health matters. Health is no mere accident, and can only be maintained at a certain level by constant care and watchfulness. Dr. Scott has stated that the standard of cleanliness in the school children of the county was rising steadily. In some schools, for the first time since the inception of school medical inspection in the county, not one child present on the day of inspection was referred back on account of dirty or verminous head or body. This encourages one to hope that within a reasonable time a standard of cleanliness that hitherto would have been looked upon as unattainable will exist among the children. More and more children are now paying the necessary attention to personal hygiene.

Armagh Mental Hospital

At the last meeting of the committee of the Armagh Mental Hospital, the resident medical superintendent, Dr. Dora Allman, submitted the one hundred and seventh annual report, for the year 1931. On December 31st, 1930, there were in the asylum 265 males and 270 females ; admissions throughout the year 1931 numbered 36 males and 41 females ; discharges, 17 men and 17 women ; and deaths, 3 men and 12 women. The number of patients remaining on the books of the institution on December

31st, 1931, was 280 men and 282 women. The daily average number of patients under care was 273 men and 276 women. The cases admitted during the year exceeded those of 1930 by twenty. The total number of patients under care during the year 1931 was 300 males and 311 females. Seventeen men and 17 women were discharged, of whom 16 men and 13 women had recovered. There were admitted under the statutory regulation made in pursuance of the Local Government Act, 1928: (*a*) 9 men and 22 women (seven more than in 1930); (*b*) dangerous lunatics committed by the justices—25 men and 17 women (eleven more than in 1930); (*c*) admitted by the Order of the Government of Northern Ireland—3 patients.

England and Wales

The London Census

The census volume covering the county of London, which has just been published, reveals a decline in the population amounting to 87,520 during the intercensal period. The figure, of course, is misleading unless account be taken of the increase in the population of Greater London, for beyond the confines of the administrative county, but to all intents and purposes forming a part of the metropolis, a population almost equal to that of Manchester has been added during the last ten years. More than one-fifth of the people of England and Wales is now concentrated in a circle of fifteen miles radius from Charing Cross. The increase in the population of Greater London during the last decennium was nearly three times as great as during the preceding one (that is, 1912-21). The new volume is, however, concerned with the area under the administration of the London County Council, which contained on census night a population of 4,397,003. This figure is higher by 600,000 than fifty years ago, but lower by 140,000 than at the beginning of this century, when the high-water mark of population was reached. The progressive decline has been most marked in the City and inner boroughs; in the outer boroughs, such as Wandsworth, Hammersmith, and Woolwich, small increments are recorded, and in Lewisham there has been a large increase of 26.3 per cent., owing to the development of the L.C.C. housing estate within the borough at Downham.

The figures throw some interesting light on housing conditions and social tendencies. The number of dwellings in the county has increased by 4 per cent. during the ten years, and the number of private families has increased by 6.17 per cent., but the average size of family, which was 3.79 persons in 1921, has shrunk to 3.46. There is a reflection here of a high marriage rate in association with a heavy reduction in birth rate. The two-person family increasingly predominates, and the two-person and three-person families now account for 45.6 per cent. of all families, whereas ten years ago these categories accounted for only 41 per cent., and twenty years ago for 36 per cent. With all the new building, structural alterations, demolition, and conversion to other uses which have taken place, overcrowding still persists, and there are more than 2,000 families of from six to ten persons occupying a single room. If the arbitrary standard of over two persons per room be taken as constituting overcrowding, the number of private families living under such conditions is 89,600, or 7.5 per cent. of the whole, a drop of over 20,000 from the figure for 1921. The figures giving the sex and age incidence are also of interest. The surplus of females remains very consistent. There were in the county when the census was taken 1,151 females to 1,000 males, the corresponding figure in 1921 being 1,165, and in 1911 1,127. During the most marriageable age period, 20 to 30, however, the surplusage of women is only 4.4 per cent. Marriage has grown more popular, and the proportion of unmarried men to the male population has decreased by 5.3 per cent., and of unmarried women to the female population by 7.2 per cent., while there are 4.2 per cent. more widowers and 3.5 per cent. more widows than at the previous census. The figures again bear testimony to the comparative longevity of women. Of seventeen persons in the county who were aged 99 when the census was taken, only four were men, and of the eighteen centenarians, only one was a man, who, incidentally, had spent his hundred and more years in bachelorhood. But the average age of the whole population, both male and female, is greater, that for the male being 32 years, and for the female almost 34 years—an increase of two years and two and a half years respectively, as compared with the previous decennium.

Maudsley Annexe at King's College Hospital

The need for additional accommodation for the treatment on a voluntary basis of early cases of nervous and mental disorder—for which the London County Council proposes to make provision by an enlargement of the Maudsley Hospital, Denmark Hill—is being felt acutely, and in view of the time which must elapse before the acquisition of land and necessary structural works can be completed, the governors of King's College Hospital have been approached by the Council and have made an offer to allow the Council to use one ward of the hospital as an annexe to the Maudsley Hospital as a temporary arrangement during two years, with a possibility of extension to a third year. The acceptance of this offer will furnish an immediate addition to the capacity of the Maudsley Hospital which will be of very great value, and will tide over a period of anticipated pressure which could hardly be met satisfactorily in any other way. The ward in question will normally provide accommodation for at least twenty-seven patients, and it is proposed to use it for specially selected women patients of a type which could be treated in the Maudsley Hospital if there were room there, and for whom the King's College Hospital ward will be particularly suitable. They will generally be confined to bed, and will be chosen as far as possible from those suffering from bodily as well as mental ailment. The ward will be administered from the Maudsley Hospital, which will provide medical attention for, and nursing of, the patients. For the purposes of the Mental Treatment Act the ward will be regarded as part of Maudsley Hospital. The total annual cost of the annexe is estimated at £5,700, of which it is expected that £3,000 will be met from contributions in respect to the additional patients.

Paddington Infant Saving Campaign

A larger proportion of babies under 12 months of age die in Paddington than elsewhere in London. About 2,200 are born every year and about 200 of these die. A potent cause of this is the lack of means on the part of the parents to call in the doctor until the child is seriously ill. It was as an effort to remedy this state of affairs that the Paddington Infant Saving Campaign was started a year ago. The parents of many of those infants who run the greatest risk of sickness and death cannot afford to pay even the most moderate doctor's fee. A fund was therefore started with which to provide medical attendance for these infants. The doctors working under the campaign have undertaken to look after the health of these infants during their first year for a nominal sum. No application has been made to any authority for a subsidy, and the campaign is in no way supported by public funds.

The campaign was inaugurated in April, 1931, and the first annual meeting was held on June 30th, 1932. The report on the year's work stated that office accommodation and clerical assistance had been provided by the Paddington School for Mothers, and that the London Public Medical Service had co-operated in dealing with the remuneration of the doctors working under the campaign. Valuable assistance was given by the School for Mothers, the health visitors, the public assistance officers, and the doctors of Paddington. In the months of October and May reports were sent to the medical officer of health, by the doctors, on the health of each infant on their lists.

Correspondence

THE ACTION OF ERGOT PREPARATIONS

SIR,—Dr. J. H. Burn's letter in the *Journal* of June 25th criticizes certain statements contained in my article on the clinical action of ergot preparations. I have read the letter with interest, and welcome this opportunity of saying that nothing in the paper in question was intended to imply that ergotoxine was without importance, or that when suitably administered it was other than a useful therapeutic agent. Beyond this, however, I cannot agree with Dr. Burn's observations.

He accepts my view that the reason why ergot came to be used in obstetrics was because of its remarkably prompt and energetic action when given by the mouth. This action I have been able to show is not due to ergotoxine, but to another constituent of ergot as yet unidentified. In view of his admission, it is difficult to understand why Dr. Burn should object to the statement that these findings stand in opposition to previous beliefs and show that ergotoxine plays a subsidiary part in the clinical action of the drug. It is possible that he has overlooked Fig. 4 of the article, which was not specially referred to in the text. This figure shows a portion of a continuous tracing in which the action of ergotoxine is contrasted with that of ext. ergot liq. (1914). Two milligrams of ergotoxine given by the mouth showed an almost negligible effect on uterine contractions during three hours following the administration, whereas two drachms of liquid extract of ergot given after this period produced a vigorous effect in thirteen minutes.

The second part of the letter deals with a different matter, and one of much greater importance. Dr. Burn points out that ergot is now used in different circumstances than was the case 100 years ago, and states that the action which is now desired is the one associated with ergotoxine, and not the one which follows the administration of the active principle which I have described. This is a matter which was not discussed in my paper, and I may perhaps be allowed to make a few comments on it now.

The chief uses of ergot in present-day practice are (1) to check post-partum haemorrhage, (2) to lessen the likelihood of uterine haemorrhage in the first twenty-four hours or so of the puerperium, and (3) to promote involution of the uterus. The first condition—the checking of post-partum haemorrhage—is not likely to be well fulfilled by ergotoxine given alone, because its action, even after intramuscular injection, is too slow. Dr. Burn agrees that in treating this condition the rapidly acting "new" principle of ergot may have a use as an alternative to pituitary extract. Regarding now the second and third indication, it may well be questioned whether the avoidance of haemorrhage and the involution of the uterus are more likely to be helped or hindered by causing the uterine muscle to go into a prolonged spasm, or by making it contract with unnatural force and frequency for several days on end. Assuming, however, that in special cases this is deemed to be desirable, the most suitable means for bringing it about must be decided.

It is generally stated that ergotoxine produces a prolonged spasm of the uterus, and Dr. Burn claims that the prolonged and persistent contraction is a special advantage. I venture to suggest that this spasm is less real than is usually supposed. In the manometric tracings of the intrauterine pressure in the puerperal uterus, a rise in the base line is present only for a short time after the administration of reasonable doses of ergotoxine; in none of my cases has it exceeded one and a half hours, and after this time the effect is that of strong contractions occurring at intervals. As previously pointed out, a considerably greater spasm can be obtained by the use of B.P. liquid and solid ergot extracts given in doses which cause no ill effect, than by ergotoxine given in doses which may cause undesirable symptoms. The duration of the spasm in these cases is usually about one and a half hours, and is followed for a long period by strong contractions occurring at regular intervals. The duration of this second effect is more than two hours, but my tracings were not continued long enough to measure the exact time.

The question thus becomes a simple one. Is it better to give a dose of ergotoxine—preferably by injection—at long intervals, or a dose of liquid extract of ergot by the mouth every four or six hours? It seems to me to be immaterial which method is used.

Finally, Dr. Burn suggests that a use for the "new" principle might be its administration during labour to stimulate uterine pains in a manner similar to pituitary extract. Ergot ceased to be used for this purpose many years ago on account of the high foetal mortality following its administration. The *pulvis ad partum* became the *pulvis ad mortem*. There is no reason to believe that this undesirable effect was due only to ergotoxine, and it seems probable that the foetal death was due to that very spasm which my tracings have recorded, and which is brought about by the unidentified principle. For these reasons I must strongly dissociate myself from any suggestion that these extracts might be used during parturition. In the above remarks no mention has been made of ergotamine. All that is said of ergotoxine is meant to apply equally well to the other ergot alkaloid.

After careful consideration I can find no reason to alter the statement made in the concluding paragraph of my article, which reads:

"It can be stated with reasonable certainty that the characteristic action of ergot known to the old obstetricians is due to a substance which has a prompt and energetic action, and which is not ergotoxine, ergotamine, tyramine, or histamine. From this it follows that the ergot alkaloids, hitherto supposed to be all-important, play in reality but a subsidiary part in the clinical action of the drug."

—I am, etc.,

CHASSAR MOIR.

Obstetric Unit, University College Hospital, July 4th.

DIET AND THE TEETH

SIR,—In the *Journal* of March 19th is a paper by Mrs. Mellanby and Dr. Pattison, in which they again demonstrate that a dietary rich in vitamin D and calcium and phosphorus leads to good dentition. They again stress their cereal toxamine theory, and it seems to be time that the facts be examined without the usual prejudice coming into the matter. If the Mellanby Diets 8 to 4 are examined closely some astonishing facts are revealed. I have used Sherman's figures for analyses as the authors of the paper did. In dietetic work I have always understood that the first essential in testing the effects of any food material is to have dietaries which

are strictly comparable, and *adequate in all respects* except the one under review. In much of Mellanby's work I do not find any of these postulates filled.

The origin of the cereal toxamine theory was the fact that puppies did not do well on diets containing cereals. The dietary in Experiment 46, reported in No. 140 of the Medical Research Council Special Reports, is typical of the rest. In it we find that separated milk, lean meat, and linseed oil supplied a calorie intake of about 200 only, and the addition of white bread increased the intake to 330 up to 600. It is no wonder that in all Mellanby's work we find the puppies that grow more rapidly are those which were given more or less sufficient calories on which to live. The dietary was woefully deficient in every particular apart from a dietetic knowledge, and obvious to anyone who has bred litters of puppies. In this matter it is as well to stress the fact that Hopkins's postulation of " accessory food factors " found universal acceptance because he presented evidence that lack of calories had nothing to do with his rats, and that is a classical lesson which should not be forgotten.

It is now general knowledge that cereals as a whole are very poor in calcium and rich in phosphorus. For instance, 150 grams of white bread will contain approximately 0.03 gram of calcium and 0.14 of phosphorus, which gives a Ca : P ratio of 1 : 4.6 ; similarly 150 grams of oatmeal will contain approximately 0.1 Ca and 0.588 P, with a ratio of 1 : 5.9, and so on through the cereals. The essentially carnivorous dog is forced in this experimental work to obtain over 50 per cent. of its energy requirements from cereals which contain the essential salts for calcification in a ratio very different from that required in the ideal dietary. The dietary is an ideal high-phosphorus-low-calcium rachitogenic one without any necessity to postulate a harmful substance in the cereals. Now if we examine the Mellanby-Pattison human dietaries 8 to 4 we can construct the following table:

Diet	Total Ration	Total Nutrients	Total Calories
	Protein		
8	4.3	21.75	14.3
7	5.1	18.1	14.3
6	4.7	18.7	14.3
5	5.4	17.6	13.7
4	5.8	18.0	13.1
	Carbohydrate		
8	7.6	38.5	25.4
7	16.3	58.3	46.3
6	14.5	55.3	42.4
5	17.9	58.2	45.1
4	17.4	59.0	46.2
	Fat		
8	7.8	39.75	58.9
7	6.6	23.6	42.1
6	6.8	26.0	44.7
5	7.5	24.2	42.3
4	6.8	23.0	40.8

It is at once obvious that the authors did not find that " surprisingly little difficulty was experienced in providing substitutes for cereals," as we see that the carbohydrate in Diet 8 has dropped to supplying only one-quarter of the calories instead of the generally accepted half. The change from the conditions in Diet 7 is very marked, as there is a decrease of 53.4 per cent. in the energy supplied by carbohydrate. In this series of diets the protein content has been the only constituent which has remained constant. The fat content varies from 23 to 39.75 per cent. of total nutrients ; and more astonishing than anything else in the whole of the diets is the variation in the milk content. This ranges from one-third to well over one-half of the ration. The different ages of the children emphasize the variety of the rations. If we assume the average weight of the children in Experiment 8 to be 19 kilograms and those in Experiment 4 to be 27 kilograms, we can express the diets in terms of grams per kilogram of the body weight, and can then arrive at the percentage variation of each constituent in these two rations, which are chosen as they are at the extremes of the scale.

FOOD INTAKE IN GRAMS PER KILOGRAM OF BODY WEIGHT

	Diet 8	Diet 4	Per cent. Variation
Calories	127.0	90.0	−40.0
Protein	4.6	3.1	−33.0
Carbohydrate...	8.0	10.5	+30.0
Fat	8.4	4.1	−51.0
Milk	63.1	20.0	−68.3
Meat	7.6	4.7	−38.0
Calcium...	0.09	0.04	−55.6
Phosphorus	0.10	0.06	−40.0

It is now clear that not a single component of the diets remained constant. They are not comparable. The widest variations are seen to be in the milk and calcium intake, which is a truly astonishing state of affairs. What was the matter with these children on Diet 8 that they were in bed for the six months of the experiment? We see that their calorie intake was as much as 127 per kilogram, whereas, I believe, active, as opposed to bed-ridden, children of that age require abut 90 calories only. This excess of calorie feeding was, of course, conditioned by the large amount of fat in that diet. The milk ration will also bear analysis. We see that it varies more than any other article in the diets.

MILK

Diet	Calcium		Phosphorus		Per cent. of Total Ration	Per cent. of Total Calories
	Amount	Per cent. of Total	Amount	Per cent. of Total.		
8	1.4	82.3	1.1	57.9	59.3	34.5
7	1.07	82.3	0.83	52.0	50.9	25.2
6	1.29	85.7	1.0	55.5	54.8	27.6
5	0.9	81.8	0.69	49.3	47.5	20.9
4	0.64	64.0	0.5	33.3	33.3	15.3

Sherman and Hawley's (1922) work has not been refuted by any experimental evidence ; they proved that the calcium of milk is utilized by the growing child to a much higher degree of efficiency than an equal quantity of calcium in vegetables which were prepared with great care to make them acceptable to the children. In view of this work and the subsequent confirmatory results it is regrettable that in the Mellanby diets the milk content varied from 63 to 20 grams per kilogram of body weight, and the calcium from milk varied from 1.4 to 0.64 gram per day. From the time that Hoobler (1912) studied the calcium retention of the infant we have known that a high fat content in the dietary leads to greater retention of calcium. Aschenheim (1913) soon confirmed these results, as he found increased calcium excretion with low fat diets, and though they were probably adding vitamin D without knowing it, the Mellanby diets show a variation in fat content, and so vitamin A and D content, which should not have been permitted. In Diet 8 we find 70 grams of butter and cream and 0.4 gram of radiostol ; in Diet 7, 28.4 grams of butter and cream, and, I presume (it is not clearly printed), 0.25 gram radiostol. With such a wide variation in vitamin A and D content it is manifestly absurd to attempt to saddle the cereal of Diet 7 with any defective dentition developing while on the ration: I know that Mellanby deprecates the term " optimal amount," but she should therefore be all the more careful to have strictly comparable amounts of such minutiae as vitamins and minerals in her rations. This she has not attempted to do.

It is remarkable that " increased oatmeal " in Diet 4 is only 51 grams, or roughly 2 grams per kilogram of body weight. As oatmeal is especially singled out for its malign influence on the deposition of calcium, it appears somewhat remarkable to me that the crofters and farm labourers of North-East Scotland should have any teeth or straight bones in view of the shockingly large amounts of " toxamine " they have absorbed for years, including their growth years. I can assure Mrs. Mellanby

that I have lived in a bothy and have seen the teeth these men have and the porridge they eat. As a group, they are very superior to the townspeople in every physical particular; oatmeal and milk is far more important in their dietary than potatoes and meat.

Here in West Africa the tribe with which I am at present concerned live on cereals, the millets, a little sour milk, and occasionally meat. Their teeth are not good, but the women have very much better teeth than the men. Many perfect sets are to be seen. The reason is personal hygiene. The Munshi tribe eat cereals, yams, and sesame. The incisors are filed to points, yet I found no dental decay in over 200 people examined. The difference to the Hausa is that they get adequate calcium and phosphorus in their beniseed and vitamin D from the sunlight.

The Tristan da Cunha report (published in the same issue) remarks on the fact that milk is plentiful and is fully used, and that eggs of hens and penguins form a fair proportion of the people's dietary. They are thus supplied with adequate vitamins and the most perfectly assimilable form of minerals for calcification. They eat a little cereal flour, apparently about 47 lb. a year per man, woman, and child, or about an average of 4 grams a day. It is a fair presumption that the flour is eaten when it arrives in the island, and so more than 50 grams a day will be taken until it is finished. During these periods of cereal-eating one should expect to find caries develop, and then be healed when the administration of "toxamine" had ceased. Apparently this is not so.

The argument that other seaboard populations enjoy as admirable a dietary as the islanders, yet suffer from caries, needs amplification. Where are these populations which are as stringently isolated as the people of Tristan da Cunha? Are they of European stock also? Is their isolation so complete that they are compelled to eat fish, extremely digestible; eggs, full of first-class protein and vitamins; and milk, full of all the salts that the human needs in their most assimilable form along with their cereals? The Tristan da Cunha teeth are admirable, with or without cereals, because the islanders have *perforce* to eat admirable calcifying foods.

Examination of Mrs. Mellanby's work as a whole and of the latest human experiments in particular shows that the dietaries used are not comparable, and such misleading basal facts have led her into her anti-cereal theory. Diet 8 is listed as cereal-free; it could also be listed, as opposed to Diet 7, as vitamins A and D rich, fat rich, or carbohydrate poor. Such variations are not permissible in first-class research, and I maintain that up to the present no evidence whatever has been produced that cereals are actively harmful.

One must not fail to see the wood for the trees. There can be no question but that cereals are deficient in the particulars I have enumerated as well as in vitamins when used as their flours. But because cereals are cheap and easily prepared the poor use them as a substitute for foods which are biologically of more importance. It is this substitution of a poor food for richer foods which has caused Mrs. Mellanby to postulate actively harmful effects from their use. Because the Hausas in times of famine use water instead of sour milk in their porridge, and they die of all sorts of nutritional diseases, I should not dare to postulate an actively harmful principle in water. The Hausa has substituted something valueless for something of value, not something harmful for something beneficent.—I am, etc.,

Dietetic Research Laboratory, Katsina, N. Nigeria. W. E. McCULLOCH, M.D.

"FALLEN IDOLS"

SIR,—My work has lain largely in the field of rhinology, but, like Sir James Berry, I recall the period when acute appendix belonged essentially to the domain of the physician. Many cases, which it fell to my lot to treat as an internist, rapidly yielded to heavy dosage with sodium salicylate, like an acute tonsillitis. Yet, with one or more recurrences, the risk of serious complications impelled one to refer such cases to surgical colleagues for interval appendicectomy. But I believe that "the great change in fashion"—that is, the early operation in acute appendix, which arose in 1896, and which Sir James Berry attributes in part to Dr. H. P. Hawkins's monograph—was in part due to the influence of epidemics of influenza.

I am reminded, moreover, that at that time an infected antrum or other sinus infection was rarely operated on or even diagnosed. Now the "grippe," that swept Europe in 1889 and Great Britain in 1890–91, and the subsequent epidemics, caused an enormous increase in the incidence and severity of nasal sinusitis. A new clinical group arose, and in meeting its requirements rhinologists developed new diagnostic and therapeutic methods. Successful results in so many cases of semi-acute and chronic sinusitis probably led to undue enthusiasm in applying these newly acquired resources to the acute cases. Hence, maybe, changes in the clinical picture rather than change of fashion led to new methods being applied alike both in the surgery of acute appendix and acute sinusitis, and what eventually becomes accepted as correct treatment will be determined by the light of riper experience.

May I suggest that sinusitis and appendicitis are furthermore linked by the possibility that increased incidence of sinusitis and other forms of focal sepsis may have in some measure determined the increased incidence of appendicitis and other gastro-intestinal secondary infections.—I am, etc.,

Bristol, July 2nd. PATRICK WATSON-WILLIAMS.

"THE USE OF THE SELF"

SIR,—Dr. A. J. Brock, in his letter in your issue of June 25th, has made certain statements, both as to the aim of my technique and my method of employing it, which, if unanswered, must leave your readers with an erroneous impression. First, Dr. Brock writes:

> "His [Alexander's] job, he tells us, is the correction **of** imperfect or inadequate functioning.' Apparently he aims at teaching his pupils to 'make a better use of themselves,' and this by an 'energetic scheme of exercises'"; and again, "Mr. Alexander obviously finds that of those who practise the exercises with determination a large number have not time to fall ill, while others who are already ill forget their troubles in the enthusiasm of the game."

Throughout the subject-matter of my book, and also in the letter you were good enough to publish on June 18th, I emphasized (1) that my work is solely concerned with the restoration and establishment of a trustworthy sensory appreciation of the use of the psycho-physical mechanisms, by means of a technique which depends upon the employment of a *consciously directed primary control*, and (2) that any improvement in "imperfect or inadequate functioning" which accrues from the application of this technique comes about, not as a direct, but as an indirect result of improvement in direction of use and of the restoration of trustworthy sensory appreciation.

Anyone who will do me the justice to read carefully the first chapter of my book (especially pages 33 to 35), where I describe in detail the application of my technique, must see that in every instance the preliminary step is the *inhibition* of any *misdirection* of use that has become habitual, and that therefore such a method presupposes of necessity the elimination of what is involved in any scheme of "exercises," whether "energetic" or otherwise, or of what Dr. Brock calls "psycho-physical gymnastics."

Secondly, I join issue with Dr. Brock when he writes that "every practitioner with a modicum of intelligence soon learns it [that is, the fact that the individual is in essence a psycho-physical unity, and a functioning unity at that] from experience." I would ask *how* the practitioner puts into practice in his diagnosis and treatment what he has learned "from experience" about this fact.

My contention, as I would remind him, in my chapter on diagnosis and medical training is that since the study and practice of medicine does not give the practitioner the training and experience which would enable him, first, to detect wrong use and estimate its influence upon functioning, and, secondly, to employ a technique evolved to the end of correcting this wrong use, he is not able "to diagnose what is wrong with the body as a whole, or treat the body as a working unity." This is the real issue between us, and so far it has not been met either by Dr. Brock or Dr. Cawadias. I would assure them that I welcome criticism, but it must be a criticism based upon knowledge of the subject-matter and of the experiences described in the book. As every scientific worker knows, the expression of opinion alone is valueless in any new field of experience, and this must be more than ever true of opinion expressed about the subject-matter of a book which is an account of experimentation resulting in the development of a technique involving new and unfamiliar sensory experiences.

In view of the gravity of the issue involved, I would ask that medical men should judge the procedures that I have set down in my book by the principle that underlies them, and prove the soundness of both principle and procedures by such tests as are consistent with their knowledge of physiology, anatomy, and psychology. On the strength of forty years' practical experience I am bold enough to believe that this would result in proof of the soundness of my technique as conclusive as has been the case with regard to my employment of the primary control, the existence of which has since been conclusively proved by the experimentation of the late Randolph Magnus of Utrecht. Whenever an authorized medical body is prepared to make such a test I am willing to co-operate.—I am, etc.,

London, S.W., June 30th. F. MATTHIAS ALEXANDER.

SIR,—The object of my last letter was to raise the wider issue of the attitude of medical men towards the numerous "new and safe methods of treatment" which are being hurled every day at the lay public by unqualified healers. I do not advocate any narrow-mindedness on that point. When the works of such unqualified healers offer any novel idea it must be gratefully accepted. I am not, however, of the opinion of Dr. Peter Macdonald that such is the case with the work of Mr. Alexander, and, notwithstanding some startling epithets, I doubt whether my arguments have been answered at all.

Dr. Peter Macdonald cannot convince us of the novelty of the ideas of Mr. Alexander by writing that before Mr. Alexander no one pointed out the importance in the diagnosis of deformities of the relation between the various parts of the body. This relation is included, in a more scientific form, of course, in the basic principle of Hippocratic medicine, the integrated and harmonious attitude of the whole body and mind. This relation has been also studied recently by orthopaedic surgeons in this country, who have developed this Hippocratic principle technically, and through its application have cured thousands of deformed and crippled individuals.

The answers to my remark that the cures advocated and practised by Mr. Alexander cannot be effective apart from the results of suggestion because they infringe the inexorable law of diagnosis, have been very much beside the point. When I speak of diagnosis, I do not, of course, mean the placing of a nosographical label on the patient, which is only a necessary promise, but the complete knowledge and grasping of the whole psycho-physical condition and personality of the individual patient. I have developed this conception of diagnosis so often that I am astonished that Dr. Brock reminds me of it. It is obvious, however, that such a diagnosis can be made only by a medical man, on account of the extensive knowledge of the physiology and pathology of the whole body and mind which it demands. I do not see how Dr. Peter Macdonald can accept that a man without such scientific training can apply and even develop the diagnostic procedure. An unqualified healer cannot make a diagnosis, and thus cannot effectively treat any diseased individual except under direct medical supervision. Under such supervision he can be of great help on account of a particular technical ability.

Mr. Alexander contends that he is the only one who can treat such disturbances of function because—I place between inverted commas quotations from *The Use of the Self*—"the medical man is limited even more in preventive work than in the field of cure" as he does not recognize the principles developed in *The Use of the Self*, "and even when he gives a diagnosis he does not possess the knowledge which enables him to distinguish between satisfactory and unsatisfactory conditions of use," and that "because the medical curriculum does not include training in the use of the human mechanisms." In the passage beginning "I was called by a specialist to a case for consultation," Mr. Alexander, addressing the lay public, relates how he corrected that specialist in his methods of auscultation. Mr. Alexander may be convinced of what he writes, but his medical friends ought to point out to him (1) that his ideas, in a more scientific form, have been well incorporated in medical practice for centuries; (2) that the medical curriculum, particularly in this country, devotes a large place to the use of human mechanisms; (3) that auscultation is science and not magic, and that those who have not the intensive training in physiology, pathology, and clinical exploration that auscultation demands can neither apply this procedure nor correct those who apply it.—I am, etc.,

London, W.1, July 4th. A. P. CAWADIAS.

*** This correspondence is now closed.—ED., *B.M.J.*

GASTRO-ENTEROPTOSIS

SIR,—Dr. Cawadias has rendered the profession a great service in his grouping of the individuals suffering from gastro-enteroptosis, and his four types with their different management should prove very helpful to the profession in dealing with this very troublesome syndrome.

I should like to call attention to a further variety of Glenard's syndrome, the symptoms of which are more intense when the patient passes from the horizontal to the vertical position. This type has acquired the enteroptosis, and is most common in very obese women after the menopause. Many of these women, particularly multiparae, have an enormous divarication of the recti, and, with an inefficient muscular corset, there is a general ptosis of all the organs. In particular the liver often drops 4 or 5 inches when the patient assumes the erect position. The chief complaint is of flushing of the face when standing. This flush may be so intense that the face becomes almost violet if the sufferer stands for long, reminding one of the appearance of a patient with traumatic asphyxia.

Another common symptom is that the tongue seems enlarged, and on examination the edges are often deeply dented by the teeth. The patients have great difficulty in moving about. All these symptoms disappear with an efficient belt, and it is surprising how much the mobility of a very stout patient is increased by dealing with this acquired enteroptosis. I have never seen this type referred to in any textbook, but consider it would be of interest to bring it to your readers' notice.—I am, etc.,

Bristol, July 1st. FRANK BODMAN.

TREATMENT OF MENOPAUSAL "RHEUMATISM"

SIR,—Treatment of this complaint by pelvic diathermy is well recognized among electrotherapeutists, and I report the following case because it illustrates very well the striking results that can be obtained in suitable cases.

The patient, a woman aged 46, had complained of pain in the lower lumbar and sacral regions for the past three years. During this period massage and radiant heat was applied, and gave slight temporary relief only. I saw her in March, 1932. An *x*-ray examination revealed no bony changes. Her menopause had not been completed, but it was in progress. Pelvic diathermy was given twice a week for two months. After six weeks the patient reported a very marked improvement, and two weeks later she discontinued treatment, as the pain had entirely disappeared. In addition, her general health was improved considerably.

The above case illustrates very clearly certain points: (1) The onset of symptoms commenced very near to the first stages of the menopause. (2) In spite of prolonged treatment, both medical and physical, the symptoms grew progressively worse. (3) The response to pelvic diathermy commenced relatively soon. (4) The patient's general health improved at the same time.

The technique of this treatment has been given in detail by Cumberbatch[1] and Robinson.[2] The mode of action is difficult to be certain of. It was suggested at the Bath Conference on Rheumatic Diseases[3] that the ovaries were primarily stimulated, and indirectly, as a result of this, the thyroid. This would certainly appear the most likely explanation. It is well recognized that the menopause is associated in many cases with a disorganization of the endocrine glands, and it would appear that this treatment tends to restore the balance. These patients invariably experience better general health after a course of treatment, which, in my opinion, should be used more widely in relation to menopausal disorders. It should be carried out as early as possible. In a number of cases I have seen, the patient has been referred several years after the completion of the menopause, and this is too late to expect any beneficial results.

Perhaps I should apologize for the word "rheumatism." Cases that I have treated include general arthritis, arthritis localized to a few joints, fibrositis, and other forms of pain that are difficult to diagnose with certainty. The outstanding features in all these are that they bear a close relation to the menopause; that they are very resistant to all ordinary methods of treatment; and that they respond very well to pelvic diathermy.—I am, etc.,

Ipswich, June 28th. C. H. C. DALTON, M.D., D.M.R.E.

[1] Cumberbatch, E. P.: *Diathermy—Its Production and Uses in Medicine and Surgery*.
[2] Robinson, C. A.: *Brit. Journ. Radiol.*, November, 1931.
[3] Proceedings of a Conference held in Bath, May, 1928, p. 230.

PROTECTIVE SERUM AND IMMUNE BODY

SIR,—Your reviewer of my book *Filterable Virus Diseases in Man* considers it a glaring contradiction to state that a serum may confer passive immunity against yellow fever and yet be devoid of viricidal or complement-fixing properties (I used the term "immune body" in the sense of complement-fixing body). As he evidently considers it a logical impossibility for an immune serum to be devoid of sensitizing antibodies, may I introduce him to the opposite view, as expressed by Topley and Wilson in their *Principles of Bacteriology and Immunity*. In vol. ii, pages 665, 666, and 671, the authors deal with this very question, and decide that although it is not a usual occurrence, a serum may possess protective action although it has no demonstrable content of immune body (that is, sensitizing body). This, however, is not the position I described for the yellow fever group. I did not state that certain antibodies were absent: I stated that they had not been demonstrated. As a matter of fact, no references on the subject of yellow fever amboceptor existed until 1930, the date of publication of Monteiro and Travassos's work.[1] Since then Davis,[2] Frobisher,[3] and Hudson[4] have described more consistent results than those of the earlier authors. As regards other antibodies in yellow fever serum, viricidal bodies have not been reported, while Frobisher[5] reports failure to obtain precipitin.—I am, etc.,

Edinburgh, July 4th. J. FINE.

[1] Monteiro and Travassos: *C. R. Soc. de Biol.*, 1930, civ, 290.
[2] Davis, G.: *Amer. Journ. Hyg.*, 1931, xiii, 79.
[3] Frobisher, M.: Ibid., 1931, xiv, 147.
[4] Hudson, N. P., Ibid., 1932, xv, 2, 557.
[5] Frobisher, M.: Ibid., 1932, xv, 2, 485.

PARENTERAL LIVER THERAPY

SIR,—In view of the recent publication on the parenteral administration of liver extract for pernicious anaemia the following incomplete record may be of interest.

On May 4th I was asked to see a man of 64, known to have pernicious anaemia, and to do his blood count. This was: haemoglobin, 45 per cent.; red cells, 1,900,000; colour index, 1.2. Blood pressure 90/50. A year ago he had responded well to liver by mouth, but had relapsed, because any form of liver had become nauseous to him. I did not see him again until June 17th, when it was suggested I should treat him with liver parenterally. He was very ill—dyspnoeic, lying in bed, and vomiting frequently. His blood pressure had fallen still lower—to 80/50. I gave him 5 c.cm. of hepatex P.A.F. intravenously that day. He had 5 c.cm. daily for six days. On June 24th his count was: haemoglobin, 15 per cent.; red cells, 600,000; colour index, 1.3. He died on June 25th.

I realize that the record is far from complete, that the diagnosis, even, may be disputed. Apart from any signs, however, I think that the history of his being kept well with liver, and the relapse when he could take it no longer, evidence good enough for proof. Was this man too ill to respond, or had he some other disease? Professor Davidson, in his article in the *Journal* of February 13th, says:

"It is worth remembering that . . . a response to such treatment [adequate liver therapy] is not proof that a primary anaemia is present. . . ."

—I am, etc.,

Bungay, June 25th. P. G. LEVICK.

ALUMINIUM AND HEALTH

SIR,—After reading the pamphlet by Dr. Le Hunte Cooper in which he mentions many diseases due to the use of aluminium cooking utensils, I read a great many papers on the subject published on the Continent and in America. I also went to the meeting of the Hampstead Division of the British Medical Association to hear further proof of such dangers. Though Dr. Spira in a long paper, emphasizing the dangers of the use of aluminium, quoted several cases from his practice, not one could be considered to be clinically proved. Dr. Cooper supported the speaker with a "typical" case of his own. I said on that occasion, and would like briefly to repeat here, that I was unable to find a single clinically proved case in the literature which was really due to the use of aluminium. In every case a different and better explanation of the origin of the disease was available—for example, psychoneurosis, nervous dyspepsia, various forms of allergy, etc. The cases of Drs. Spira and Cooper belong to this category and admit of the same explanations.

In addition to those references which you give in your annotation in the *Journal* of March 26th there are many

others, German, French, etc. All the evidence (chemical and experimental and clinical) shows that there is no danger in using aluminium cooking utensils, and in fact they are more innocuous than the copper, nickel, or iron utensils.—I am, etc.,

London, N.W.3, June 28th. E. STOLKIND.

SIR,—May I be allowed a few comments on Dr. F. E. Loewy's letter in your issue of June 18th? I cannot agree that "One man's meat is another man's poison" is applicable to aluminium, for under no circumstances can the artificial introduction of aluminium into the system be considered nourishing or advantageous to anyone; nor can a similarity be justly claimed between "food allergy" and the symptoms of aluminium poisoning. Food is necessary to the life of man, and if a certain individual develops allergic idiosyncrasy to certain food substances, the simple expedient of avoiding such substances is open to him. Aluminium, on the other hand, is a foreign substance, introduced by modern civilization, artificially, into the human system through the use of cooking and storing vessels made of this metal, and in this form I and many others find it definitely deranges health.

Different individuals are naturally affected differently, and in most cases no obvious derangement is apparent till later in life, but when it is discovered, the expedient, easily applicable with food, becomes more and more difficult in the case of aluminium. The continued paeans of praise for the culinary use of this material encourage more and more food-preparing factories to employ it, and the difficulty those sensitive to its action have in trying to avoid the products of these factories is extreme. A member who spoke at the meeting of the Hampstead Division of the British Medical Association is a case in point. He, like many other cases I have seen, has, since recovering from prolonged illness on leaving off the main intake, become allergically sensitive to it in an intense degree, with extreme inconvenience to him when travelling. But if we permit still more and more food to be contaminated the distress of these sufferers will be intensified, to say nothing of the increased insidious effects on others.—I am, etc.,

R. M. LE HUNTE COOPER, M.D.

London, W.1, June 25th.

SIR,—The possibility of specific hypersensitiveness towards metal salts is an established fact; I know references concerning mercury, gold, and nickel. I agree with Dr. M. H. Fridjhon's hypothesis (*Journal*, June 25th, p. 1192) that the metal salt in these cases acts indirectly through a chemical reaction in the sensitive system—but not merely as a catalyst. Recent work, especially by Landsteiner, has proved that non-nitrogenous substances can acquire specific antigenic powers when combined with protein "carriers." These experiments are already of practical importance for improvements in the manufacture of immune serums. The idiosyncrasy towards a metal or drug can therefore be explained as depending on a combination of that chemical with the body proteins, which compound in turn acts as an antigen and produces the allergic symptoms (see the editorial on "Nonprotein allergy" in the *Journal of the American Medical Association*, April 30th, 1932).

The convenient terms "allergy" and "allergic" are at present used in this country (G. W. Bray: *Recent Advances in Allergy*, London, 1932), on the Continent (Doerr, Krehl, Jadassohn), and in America (*Journal of Allergy*) to embrace all forms of specific hypersensitiveness in man, towards proteins as well as towards non-nitrogenous substances and even physical agents (light, cold). The similarity of the acute reaction ("shock") which in cases of severe hypersensitiveness promptly follows the ingestion of so different substances as quinine, mercurochrome, eggs, and horse serum is certainly striking.

I am investigating the problem of idiosyncrasy towards aluminium and tap water, and should be glad to hear from medical men who are in touch with sufferers.—I am, etc.,

London, W., June 25th. F. E. LOEWY.

SUMMER CAMPS FOR WORKING BOYS

SIR,—Now that the long-delayed summer has come, the thoughts of many will turn to plans for holidays in the country or by the sea, but the difficult times through which we are passing will make such holidays very difficult for some. One of the results of this period of depression is that the boy of from 14 to 18 years of age is often the only member of his family at work, and his wages are so badly needed in the home that saving becomes very difficult. Such boys will probably be allowed a week from work, but will have to spend the time in the streets of London if some help is not forthcoming. The Boys' Brigade for the past forty-nine years has provided in its summer camps the ideal holiday for the working boy, with a complete change to open-air life, good food, sane discipline, and the cost kept down to the lowest possible figure. Low as this is, it is more than many boys will be able to raise in these days, although they will be expected to pay a large proportion. May we ask your readers to help with the balance, so that these deserving young Londoners may have the benefits of camp this year? Donations should be addressed to the honorary London treasurer, the Boys' Brigade, Abbey House, Victoria Street, S.W.1, and cheques should be crossed "The National Provincial Bank Ltd."—We are, etc.,

ATHLONE.
HUGH S. TURNBULL.
ALFRED F. BUXTON.
DAWSON OF PENN.

London, S.W., June 21st.

Obituary

DAVID NICOLSON, C.B., LL.D., M.D.

Late Lord Chancellor's Visitor in Lunacy

We regret to record the death, on June 28th, at Camberley, of Dr. David Nicolson, a former president of the Medico-Psychological Association, who was for many years Lord Chancellor's Visitor in Lunacy, and had been medical superintendent of the State Criminal Lunatic Asylum, Broadmoor.

Born at Auchlethen in Aberdeenshire on December 25th, 1844, David Nicolson studied medicine at the University of Aberdeen, and graduated M.B. and C.M. with honours in 1866, proceeding M.D. in 1875, and taking the M.R.C.P.Ed. in 1881. Immediately after graduation he became house-surgeon to the Dundee Infirmary, and then, in 1867, entered the Prison Medical Service. During the next six years he served in turn as assistant surgeon at Portland, Woking, and Millbank convict prisons. In 1873 he was appointed senior medical officer to Portsmouth Prison, and in 1876 deputy superintendent of Broadmoor, succeeding to the position of superintendent in 1886.

Dr. Nicolson's wide experience and sound judgement led to his appointment as medical adviser to the Home Secretary in criminal mental cases. He was a member of the Home Office Departmental Committee on Habitual Drunkards, 1891–2, and of the Irish Governmental Com-

mittee of Inquiry into the administration of the Dundrum Criminal Lunatic Asylum in 1891. In 1896, the year of his retirement from Broadmoor and of his presidency of the Medico-Psychological Association of Great Britain and Ireland, he was appointed one of the Lord Chancellor's Visitors in Lunacy, holding that office with great acceptance until 1921. In 1904 he acted as president of the Irish Departmental Committee on Insanity among Convicts. He was created C.B. in 1897, and received the honour of foreign membership of the medico-psychological societies of Paris and Belgium. In 1920 his Alma Mater conferred on him the honorary degree of LL.D. He was the author of papers on the "State of society in relation to criminal psychology," and "Crime, criminals, and criminal lunatics," and of an address published in these columns in 1899 with the provocative title "Can the reproachful differences of medical opinion in lunacy cases be obviated?" In this he expressed his belief that the conflicts of opinion among medical men and medical psychologists in such matters "ought not to occur if we know our work and if we carry out that work in an honourable, careful, independent, and fearless manner."

At the Annual Meeting of the British Medical Association at Bournemouth in 1891, and again in London four years later, Dr. Nicolson was vice-president of the Section of Psychology, and in 1899 at Portsmouth he was president of the same Section. At the Aberdeen meeting in 1914 he was vice-president of the Section of Medical Sociology.

The death occurred on June 30th, at a nursing home in Inverness, following an operation, of Dr. JAMES PENDER SMITH, a well-known practitioner in the North of Scotland. He was born in 1863, and after graduating M.B., C.M. at Glasgow in 1884, went to Dingwall as an assistant and later took up practice in Skye. In 1892 he took over the practice in Dingwall of the late Dr. William Bruce, and also practised among the visitors at the neighbouring Strathpeffer Spa. He was surgeon to the Ross Memorial Hospital, Dingwall, and physician to the Nicolson McKenzie Hospital, Strathpeffer. Dr. Smith took a considerable interest in public work, and was for many years a member of the Highlands and Islands subcommittee of the British Medical Association.

We regret to announce the death, on July 1st, in a nursing home at Dundee, of Dr. ROBERT THORNTON of Airlie Place, Dundee. Dr. Thornton, who was a native of Arbroath, graduated M.B., C.M. at Edinburgh in 1897. He studied public health at St. Andrews University and received the D.P.H. in 1902, after which he became assistant to the lecturer in public health in University College, Dundee. He built up an extensive practice in Dundee, and was police surgeon for Lochee. One of Dr. Thornton's chief recreations was chess, and he was a prominent member of the Dundee chess club.

The following well-known foreign medical men have recently died: Dr. ARISTIDES AGRAMONTE, head of the department of tropical diseases at the Louisiana State University Medical School and president-elect of the Pan-American Medical Congress, aged 61; Professor W. KOLMER, a Vienna physiologist, aged 52; Hofrat Dr. FELIX WOLLF of Hamburg, aged 75; Professor ARTHUR HARTMANN, a Berlin oto-rhino-laryngologist, aged 83; Professor E. V. MEYER, a Berlin laryngologist, aged 67; Dr. LEE K. FRANKEL a former president of the American Public Health Association, aged 64; Dr. WILLIAM CHARLES HASSLER, city health officer of San Francisco, and president-elect of the American Public Health Association, aged 63; Dr. ALFRED GROTJAHN, professor of social hygiene in Berlin and author of works on alcoholism, social pathology, and the doctor as patient, aged 61, from cholelithiasis; and Dr. VECCHI, the doyen of Italian practitioners in North America, aged 84.

Medico-Legal

ALLEGED TRESPASS TO THE PERSON, NEGLIGENCE, AND BREACH OF CONTRACT

Following upon the verdict of the jury in the case of Cull *v.* Chance and others, reported in our issue of June 25th (p. 1195), an agreed form of judgement was entered in the Lord Chief Justice's court on June 24th. It will be recalled that the plaintiff claimed damages for alleged trespass to the person, negligence, and breach of contract from the committee of management at the Royal Surrey Hospital, Guildford, and from Mr. H. B. Butler, F.R.C.S., surgeon to the hospital. The jury found that there was a negligent breach of contract on the part of the hospital authorities, and assessed the damages at £120; that there was trespass on the part of Mr. Butler, and assessed the damages at one farthing, and that Mr. Butler was guilty of trespass through negligence of the hospital authorities.

It was now announced that all parties had agreed on an order the effect of which would be judgement for the plaintiff against the committee of management for £120 and her costs in the action, and judgement also for the plaintiff against Mr. Butler for one farthing damages without costs, the sum of £25 which Mr. Butler had paid into court to be returned to him. Mr. J. Singleton, K.C., who appeared for the plaintiff, said that Mr. Butler had acted generously in not asking for costs to which he would be entitled if the court made the order which might be anticipated in the circumstances of the case. The order agreed upon, which meant that the plaintiff got her costs of the action, was one which might save trouble hereafter. Mr. H. C. Dickens, for Mr. Butler, said that it had been decided that in all the circumstances no application should be made by Mr. Butler for costs. That decision was spontaneous, without any advance from the other side.

The Lord Chief Justice approved the agreed form of judgement.

Universities and Colleges

UNIVERSITY OF BIRMINGHAM

At a congregation held on July 2nd the following degrees were conferred:

M.D.—R. D. Lockhart, L. G. Parsons.
M.CH.—Seymour Barling.
D.Sc.—E. W. Hurst (Pathology).
M.B., CH.B.—*†A. H. Barber, *‡Lilian M. Buxton, *A. F. Goode, *†J. Hardman, D. T. Davies, T. G. Davies, K. B. Forsyth, E. N. G. Gorman, W. B. Gough, Peggy Levi, A. D. B. Mackie, J. C. Neill, Frances E. Smart, D. Turner, A. J. K. Wilson, A. T. Wynne.

* Second-class honours. † Distinction in Midwifery and Diseases of Women. ‡ Distinction in Medicine.

The following scholarships and prizes have been awarded: *Queen's Scholarships:* (Third year) J. L. Collis; (fourth year) J. S. Mitchell; (fifth year) D. M. Brown, C. S. Whitehouse (divided); (final year) A. H. Barber. *Ingleby Scholarships:* (Final year) A. H. Barber, J. Hardman. *Arthur Foxwell Memorial Medal:* (Final year) A. J. K. Wilson. *Sampson Gamgee Memorial Medal for Surgery:* (Final year) A. H. Barber. *Priestley Smith Prize for Ophthalmology:* (Final year) D. Turner. *Russell Memorial Prize*: J. Hardman. *Peter Thompson Prize in Anatomy:* (Third year) L. Goldman.

UNIVERSITY OF LIVERPOOL

The following candidates have been approved at the examinations indicated:

M.D.—C. H. Bradley, J. W. Cheetham, R. A. Furniss, G. Macdonald, E. E. Prebble, J. W. Reid.
M.H.—B. L. Davis.
M.B., CH.B.—[1 4 5]W. Bullock, [1 3 4 5]A. S. Kerr, [2 5]H. Ackers, [2 4]F. R. Edwards, [2 5]M. H. Papperovitch. *Part III* (1923 Regulations): R. Fairhurst, Ruth Simpson. *Part B* (1924 Regulations): D. G. W. Brown, M. H. Clark, H. V. Corbett, H. L. Davies, W. S. Davies, J. R. Eatough, G. R. Griffith, H. G. Hanley, T. P. J. Higgins, E. R. Jones, Nancy L. Lewis, Eva Macdonald, Margaret Mewton, E. Parry, Beatrice L. H. Sergeant, A. L. Smallwood, Edna L. Smart, G. E. Thomas, D. Wainwright, V. J. Woodward, R. F. Wynroe. *Part A* (1924 Regulations): C. S. Anderson, D. W. Bailey, [6 7 8]Freda B. Bannister, R. T. Bowes, J. D. Bryan, Clara Burgess, N. G. L. Carroll, [7]G. Cornah, [6]W. L. Dove, J. M. Edwards,

[6]J. G. Hailwood, Dorothie M. N. Harris, [6 7]J. D. Hay, [7]W. S. Heath, [6 7 8]S. Henderson, Nancy A. Holt, R. A. Hughes, [6]W. R. Hunter, H. B. N. Jennings, A. G. Leigh, W. N. M. Mason, [7]W. Milburn, E. T. Owen, S. Papperovitch, I. Pugh, W. E. Pycraft, F. Pygott, Enid Richard, Estelle E. Roskin, T. Seager, Kathleen E. Slaney, G. N. Sleggs, [7 8]C. H. Stewart-Hess, E. Taylor, [8]G. W. Warner, J. L. Williams. *Passed in Individual Subjects:* S. V. Cullen, A. Gleave, Joan M. Matthews, J. Morgan, H. H. L. Pentz, and D. Simpson (Public Health), T. H. Pierce (Forensic Medicine and Toxicology). *Part I* (1929 Regulations): A. B. Concanon, Bessie Dodd, F. A. Frank, [8]E. W. Jones, J. L. Lanceley, F. A. Momax, A. J. McCall, Annie A. Merrick, L. Millward, Margaret F. Procter, A. Speight, S. L. Strange, R. P. Tong, [8]J. K. B. Waddington, M. M. Wallis, Margaret C. Winter. *Passed in Individual Subject:* S. Shulman (Pharmacology and General Therapeutics). *Part II:* [6]R. E. Wilson.

D.P.H.—*Part I:* L. G. Anderson, C. L. Emmerson, G. A. Fulton, G. A. C. Lynch. *Part II:* [9]E. D. Irvine, G. W. Paton, M. Solomon, [9]Honora J. Twomey.

DIPLOMA IN TROPICAL MEDICINE.—H. E. M. Adams, B. S. Bindra, E. G. Williams.

[1] First-class honours. [2] Second-class honours. [3] Distinction in Medicine. [4] Distinction in Surgery. [5] Distinction in Obstetrics and Gynaecology. [6] Distinction in Forensic Medicine and Toxicology. [7] Distinction in Public Health. [8] Distinction in Pharmacology and General Therapeutics. [9] With Distinction.

The following awards have been made in the Faculty of Medicine: *John Rankin Fellowships in Anatomy:* Dr. O. Vaughan Jones (for two years), Dr. E. B. Whittingham (for one year). *Thelwall Thomas Fellowship in Surgical Pathology:* Dr. T. L. Hughes. *John W. Garrett International Fellowship in Bacteriology:* Dr. F. J. H. Crawford. *Holt Fellowship in Pathology:* Dr. W. W. Gerrard. *Holt Fellowship in Physiology:* Dr. A. B. Follows. *Robert Gee Fellowship in Human Anatomy:* H. L. Davies. *Johnson Colonial Fellowship in Biochemistry:* J. Devine. *Samuels Memorial Scholarships:* (Medicine) Dr. D. U. Owen, (Surgery) Dr. M. Silverstone, (Obstetrics and Gynaecology) Mr. P. Malpas. *University Graduate Scholarship in Medicine:* Divided between S. Henderson, Freda B. Bannister, and E. W. Jones. *Owen T. Williams Prize:* A. S. Kerr. *George Adami Prize in Pathology:* Divided between S. Henderson and A. J. McCall. *Kanthack Medals* (1924 Regulations): S. Henderson; *proxime accessit*, Freda B. Bannister. *Kanthack Medals* (1919 Regulations): J. K. B. Waddington; *proxime accessit*, Margaret F. Procter. *Silver Medal in Pharmacology:* A. J. McCall; *proxime accessit*, S. Shulman. *Silver Medal in Forensic Medicine and Toxicology:* R. E. Wilson; *proxime accessit*, Freda B. Bannister. *William Mitchell Banks Bronze Medals:* Mabel M. Drummond, L. Henry.

UNIVERSITY OF ST. ANDREWS

At the June graduation ceremony the degree of LL.D. *honoris causa* was conferred on Dr. L. R. Sutherland, Emeritus Professor of Pathology in the University; and on the Rev. Dr. Albert Schweitzer, who holds doctorates in medicine, theology, philosophy, and medicine, and when a missionary surgeon in equatorial Africa founded the hospital at Lambaréné. Among others who received the same honorary degree was Sir James Frazer, O.M., author of *The Golden Bough*.

UNIVERSITY OF DUBLIN

TRINITY COLLEGE

The following degrees and diplomas were conferred on June 30th:

M.D.—W. Russell.

M.B., B.Ch., B.A.O.—S. Brass, J. Conroy, J. L. du Preez, J. Elliman, M. Fallon, A. J. Harden, G. F. Harris, J. G. McIntyre, P. P. Murphy, L. L. Nel, W. A. Ryan, C. de V. Shortt, J. G. Wilson, H. B. Wright.

LICENTIATE IN MEDICINE, SURGERY, AND OBSTETRICS.—H. Michael.

SOCIETY OF APOTHECARIES OF LONDON

The following candidates have passed in the subjects indicated:

SURGERY.—J. H. Beale, P. D. Bhatt, L. A. De Dombal, J. F. Rivers Moore, J. C. Selnes, Grantley Smith, F. A. Trowbridge.

MEDICINE.—C. H. Blewett, M. B. Chandulal, G. A. Dingemans, A. A. Grace, E. Jacomb, J. W. Meyers, T. S. Nicol, C. V. P. Pillai, J. F. Rivers Moore, E. O. Smith.

FORENSIC MEDICINE.—G. R. Davies, P. A. Diemer, G. E. Ellison, A. A. Grace, T. E. Mitchell, F. C. Moll, T. S. Nicol, C. V. P. Pillai, J. F. Rivers Moore, R. C. P. Thomas.

MIDWIFERY.—F. W. Baskerville, J. L. Bates, P. A. Diemer, J. C. Hoyle, W. S. Pitt Payne, J. F. Rivers Moore.

The diploma of the Society has been granted to Messrs. J. H. Beale, C. H. Blewett, G. R. Davies, L. A. De Dombal, G. A. Dingemans, A. A. Grace, J. C. Hoyle, E. Jacomb, J. F. Rivers Moore, E. O. Smith, Grantley Smith, and F. A. Trowbridge.

Medical Notes in Parliament

[FROM OUR PARLIAMENTARY CORRESPONDENT]

In the House of Lords, on July 4th, the National Health Insurance and Contributory Pensions Scheme Bill was read a second time.

In the House of Lords, on July 5th, the Town and Country Planning Bill was considered on the report stage.

Parliament will rise for the Summer Recess next week. The House of Commons this week carried all outstanding Estimates for the current year, and authorized the imposition of import duties on produce from the Irish Free State. Progress was made with outstanding Bills.

In the House of Commons, on July 5th, the Extradition Bill, which includes offences in relation to dangerous drugs among extradition crimes, was read the second time.

On July 5th a meeting of about twenty Members of Parliament decided to set up a committee to draft a Bill for legalizing the sterilization of mental defectives. Sir Basil Peto was chosen as chairman, and Wing Commander James as honorary secretary.

National Health Insurance Bill

In the House of Lords, on July 4th, the Health Insurance and Contributory Pensions Scheme Bill was read the second time. LORD MARLEY, in opposing the Bill, said that it meant a grave change in the health services of the country by cutting down benefits from national health insurance. The Opposition believed that it was only by means of a public medical service, free and open to all, that the health of the individual could be preserved, disease prevented, epidemics controlled, and the physical welfare of the community promoted.

On July 5th the Bill passed through the committee stage.

"Nomenclature of Diseases"

On June 30th Mr. JOHN MORRIS asked the Minister of Health "whether he is aware that a copy of a book, entitled *The Nomenclature of Diseases*, has been sent gratis to every qualified medical man; that the price of the book is marked 5s. net and the postage cost 6d.; that the only use of the book is that of a reference book in a library; and will he, in the interests of national economy, stop this practice of sending unwanted books and publications gratis to people at the public cost."

Sir HILTON YOUNG replied as follows:

"The answer to the first and second parts of the question is in the affirmative. The cost of postage is 5d., not 6d. As regards the third part, the book is of regular and practical use to the medical profession. Successive editions have been recognized since 1869 as indispensable to accurate certification of sickness and of the causes of death. It was for this reason that steps were taken to secure that the latest edition (which supersedes an edition published in 1917) should reach the hands of every registered medical practitioner. My hon. friend will perhaps accept my assurance that no such practice as is described in the last part of the question exists."

Motor Car Noises.—The House of Commons, on June 20th, considered in committee the vote for the expenses of the Ministry of Transport. Mr. MORGAN JONES moved a reduction of the vote. Mr. LOVAT-FRASER said that anybody going about the City must have observed the great increase in the last few years of horrible shrieking motor horns. They were injurious to health. A sudden shriek in the ear had much the same effect on the physical system as a blow. He had read in the reports of medical congresses that doctors said that the children who lived in big cities were growing up with impaired nervous systems because of the constant noise. He asked the Minister of Transport to give some attention to the matter and see if something could be done. Could not he fix standards confining the noises made by motor cars

within certain ranges? Mr. HALES said that between 1926 and 1931 the injuries on the roads had increased by over 50 per cent., from 133,000 to 202,000. There should be some means of reducing that frightful total. The motion for reduction was negatived by 258 votes to 28, and the debate on the vote was adjourned.

Experiments on Animals.—On June 21st, Mr. GROVES asked the Home Secretary the names of the two experimenters who were authorized to perform operations on animals without anaesthetics in 1930 at the place No. 222 registered for vivisection, and what scientific qualifications they held for such work. Mr. OLIVER STANLEY replied that the published returns contained the particulars asked for. He added that Mr. Groves was incorrect in asserting that the persons referred to were authorized to perform operations on animals without anaesthetics. The experiments performed were feeding experiments only.

Diphtheria Immunization.—Answering Mr. Groves, on June 22nd, Sir HILTON YOUNG said he was informed that children in the Stifford and Grays children's home had been Schick-tested and inoculated against diphtheria. The London County Council was seeking the consent of the parents before undertaking this immunization.

Hospitals and Road Accidents.—Replying, on June 22nd, to Mr. Neil Maclean, Mr. PYBUS said that the position of voluntary hospitals with regard to motor accidents had been carefully considered, and while he sympathized with the desire of the hospital authorities, he reminded the House that, during the passage of the Act, it was pointed out that the amendment carried to the Road Traffic Act to provide for payments to hospitals was unlikely to achieve the result desired.

Prevalence of Throat Diseases.—In reply to Mr. McEntee, on June 23rd, Sir HILTON YOUNG said a report of the school medical officer for Enfield on the increase in the prevalence of enlarged and diseased tonsils among school children, suggesting that this might be due to the changed transport system of the country, was under the consideration of the Board of Education. He was advised that at present there was not sufficient evidence to justify an inquiry to be made into the possibility that inhaling of petrol and oil fumes was a factor in throat disease among all classes. He would have available information on the subject examined with a view to considering whether further investigations were desirable.

Poverty and the Public Health.—Replying, on June 23rd, to Mr. Macmillan, Sir HILTON YOUNG said he had received the annual report of the medical officer of health for Stockton dealing with the effects of the industrial depression and consequent poverty on the health of the community. Local authorities had been asked, when reviewing expenditure, to pay special regard to services which were required on urgent grounds of public health.

Examination by Medical Referee.—Replying to Mr. Maclean on June 29th, Mr. STANLEY said it was within the discretion of a medical referee to decide in each case what persons, if any, should be allowed to be present at the examination of an injured worker whose case for continued compensation had been referred to the referee. He had no information to show how referees exercised this discretion.

Health Insurance Contributions.—Replying to Mr. Batey on June 30th Sir HILTON YOUNG said that contributions paid under the National Health Insurance Acts for the year ended December 31st, 1931, amounted to approximately £25,870,000, of which the portions payable by the employers and employees were estimated to be £13,150,000 and £12,720,000 respectively. The amount paid from the Exchequer was £6,320,000.

Compensation for Silicosis.—Replying to Mr. Lawson on June 30th, Mr. STANLEY said that the number of cases in coal mines in which compensation for silicosis had been paid since February 1st, 1929, when the Various Industries (Silicosis) Scheme came into operation, up to the end of 1931, was ninety-one, including twenty fatal cases.

Penalties for Cruelty to Animals.—Replying to Sir Robert Gower on June 30th Mr. STANLEY said that legislation could not be introduced to make more drastic the penalties imposed on persons convicted of cruelty to animals. The question of introducing some form of legislation which could deprive such people of the right to own dogs had been considered, but there were almost insuperable difficulties in the way. Answering Mr. Hutchinson on the same date, Mr. STANLEY said he would not take steps to give power to benches of magistrates before whom cases of gross cruelty to animals were heard to order a medical examination of the prisoners. Magistrates could already obtain a medical examination in all cases where they considered it desirable.

Ex-Services Welfare Society.—On July 4th, Mr. MCENTEE asked Major Tryon if his attention had been drawn to the work done by the Ex-Services Welfare Society for ex-service men suffering from neurasthenia at the village settlement in Leatherhead, and if he would consider the possibility of making provision in the estimates of the Ministry of Pensions for a grant-in-aid. Major TRYON replied that the activities of the Ex-Services Welfare Society were known to him. It was contrary to the practice of the Ministry to make grants to voluntary institutions, and in view of the fact that ample provision (amounting this year to £2,650,000) was already made by the House of Commons for the treatment of ex-service men suffering from mental and nervous disease whose disability was the outcome of their war service he was unable to entertain the suggestion.

Deaths from Small-pox.—Sir HILTON YOUNG informed Mr. Groves, on July 5th, that in 1931 nine deaths in England and Wales were classed to small-pox. In six of these some other disease was named on the death certificate in addition to small-pox. The ages at death of the nine cases were: 1 week (2), 1 month, 6 months, 7 years, 55 years, 63 years, 65 years, and 75 years. In addition, there was one death at the age of 19 years classed to lobar pneumonia in which small-pox was also named on the death certificate. Mr. E. BROWN, replying to Mr. Groves, on July 4th, said that in the first five months of 1932 three deaths had been classed to small-pox. The figures for June were not yet available. One death at the age of 5 months from infection of vaccination wounds in 1930 was classed to pyaemia; another classed to septicaemia was at the age of 19 years.

Illicit Traffic in Drugs.—On July 5th, Sir W. SUGDEN asked the Home Secretary if he was aware that there was in the West End of London more open selling of cocaine and similar drugs than at any period since the war, and that the greater part of the drugs was supplied through chemists who carried on a normal business. Mr. O. STANLEY: No, Sir. All the evidence is to the contrary. Sir W. Sugden further asked if it was not a fact that this supply came through Continental chemists. Mr. Stanley replied in the negative. Replying to Mr. John, Mr. Stanley said there was, so far as was known, no increase in the smuggling of dangerous drugs. The preventive staff had not been decreased.

Radium Deposits in Canada.—On July 5th, Mr. J. H. THOMAS said that recently discovered pitchblende (radium ore) deposits on the Great Bear Lake in the North-West Territory of Canada were being actively developed.

Notes in Brief

The Minister of Health cannot at present consider introducing legislation for the marking of all imported cream with its butter-fat content.

Persons (men, women, and children) in receipt of poor relief in England and Wales (excluding rate-aided patients in mental hospitals, persons in receipt of domiciliary medical relief only, and casuals) on the last Saturday of April, 1932, and of May, 1932, were 1,195,038 and 1,213,433 respectively.

The Home Secretary is not able to make any statement about the introduction of the Factory Bill, and no statement is likely before the Summer Recess.

From March 11th to May 31st inclusive, 101 people were killed and 2,618 injured in road accidents in the Metropolitan police district.

The Home Secretary will confer with the Commissioner of Police and the President of the Board of Education on the general question of increasing the safety of children in crossing roads when returning from school.

The Services

ROYAL ARMY MEDICAL CORPS

Lieutenant-General Sir John Goodwin, K.C.B., K.C.M.G., D.S.O. (ret. pay), Colonel Commandant, the Army Dental Corps, has been appointed Colonel Commandant, Royal Army Medical Corps, in succession to Major-General Sir Maurice P. C. Holt, K.C.B., K.C.M.G., D.S.O. (ret. pay).

DEATHS IN THE SERVICES

Surgeon Commander Mark James Aitken, R.N., died in the Royal Naval Hospital at Haslar on June 29th. He was the son of the late James Aitken of Glasgow, and was educated at Glasgow University, where he graduated M.B. and Ch.B. in 1911. Entering the Navy soon after, he attained the rank of Surgeon Commander on April 3rd, 1926. He served in the war of 1914–18, receiving the medals.

Surgeon Commander John Walter Slaughter, R.N. (retired), of Budleigh Salterton, died in the Middlesex Hospital on June 27th; aged 69. He was educated at Trinity College, Dublin, where he graduated M.B. and Ch.B. in 1885, and entered the Navy in the following year, attaining the rank of Fleet Surgeon, now Surgeon Commander, on August 25th, 1902, and retiring in 1907. His last ship before retirement was the battleship *Swiftsure* in the Channel Fleet, then commanded by the late Rear-Admiral Sir Christopher Cradock. He leaves a widow.

Lieut.-Colonel Albert Baird Seaman, Bengal Medical Service (retired), died at St. Leonards on June 12th, aged 89. He was born on December 11th, 1842, the son of Shadrach Seaman, Esq., of Thorpe-le-Soken, Essex, was educated at King's College, London, and took the M.R.C.S. in 1865, and the L.R.C.P.Ed. in 1868. Entering the I.M.S. as Assistant Surgeon on October 1st, 1869, he became Brigade Surgeon Lieutenant-Colonel on October 22nd, 1894, and retired, with an extra compensation pension, on October 1st, 1896. He spent his service in military employ, and served in the Burmese war in 1885–6 (medal with clasp); in the North-East Frontier in the Lushai Hills in 1889, when he was mentioned in dispatches in G.G.O. No. 592 of 1889; and in the North-West Frontier in the Waziristan campaign of 1894, including the action at Wano (clasp).

Medical News

The ninety-first annual meeting of the Royal Medico-Psychological Association will be held from July 13th to 16th at the Municipal Buildings, Stirling, under the presidency of Dr. R. B. Campbell.

The Prince of Wales will open the new buildings at the Heritage Craft Schools, Chailey, Sussex, on July 19th. The children treated at the Heritage are sent there by educational and other public authorities from all parts of the country.

The Royal Institute of Public Health has vacated its premises at 37, Russell Square, and has removed to 23, Queen Square, and Guilford Street, W.C.1.

At the meeting of the Paddington Medical Society at the Great Western Royal Hotel, on Tuesday, July 12th, at 9 p.m., Dr. F. C. Martley will give an address on "Sickness insurance."

Founders' Day at Epsom College will be celebrated on Saturday, July 23rd, the second day of the cricket match, College *v.* Old Boys. Service in chapel at noon; presentation of prizes by the Bishop of Guildford at 3.30, followed by tea on the cricket ground; performance of *The Mikado* by the Choral Society at 8 o'clock.

The Fellowship of Medicine and Post-Graduate Medical Association has made arrangements for a series of lectures on migraine by Lieut.-Colonel R. H. Elliot, at the Medical Society of London, 11, Chandos Street, W., on July 14th, 21st, and 28th at 5 p.m. These lectures are free to members of the Fellowship. On July 22nd, at the National Temperance Hospital at 8.30 p.m., the first of a series of discussion-demonstrations will take place, the subject being "Certain aspects of indigestion." There will be no fee for members. In the absence of special courses, particular attention is called to the individual clinics which are available every day. These clinics may be attended only by special arrangement with the Fellowship. The number of post-graduates attending each clinic is strictly limited, the usual maximum being four, so that the teaching amounts almost to individual tuition. A list of these clinics is published every month in the *Post-Graduate Medical Journal*. Copies of all syllabuses of courses and also the list of clinics can be obtained on application to the Fellowship of Medicine, 1, Wimpole Street, W.1.

An international medical post-graduate course, under the auspices of the Royal University of Milan, will be held at Milan from September 12th to October 2nd. The subject-matter to be dealt with during the course is distributed among the following special branches: heart diseases, cancer, preventive inoculations against diphtheria, neurology (neurosyphilis, multiple sclerosis, poliomyelitis), hormones. Particulars may be had from the secretary, Tomarkin Foundation, Case postale 128, Locarno, Switzerland.

At the eighteenth annual Conference of the National Association for the Prevention of Tuberculosis, which, as previously announced in these columns, will be held in London from July 21st to 23rd, addresses on the influence of the discovery of the tubercle bacillus by Robert Koch on medicine, surgery, and public health, will be given by Dr. R. A. Young, Sir Henry Gauvain, and Dr. W. C. White of Washington. Dr. F. J. H. Coutts will open a discussion on the protection from tuberculosis of the young adult. On the second day of the conference a discussion on the need for continuity of care in tuberculosis will be opened by Dr. Septimus Walker and Miss Edith McGaw. Further details may be obtained from the secretary of the National Association for the Prevention of Tuberculosis, Tavistock House North, Tavistock Square, W.C.1.

An International Congress of Biliary Lithiasis will be held at Vichy from September 19th to 22nd. The questions for discussion are: (*a*) the medical treatment of biliary lithiasis; and (*b*) the ultimate results of cholecystectomy. Lord Moynihan will be the honorary president of the congress, and Professor Wilkie of Edinburgh is to read a paper. It is hoped that all those who are interested will make a special effort to attend. Inquiries and applications should be addressed to Dr. J. Aimard, Secrétaire-Général du Congrès International de la Lithiase biliaire, 24, Boulevard des Capucines, Paris, IX.

The eleventh annual conference of cremation authorities will be held in conjunction with the annual conference of the National Association of Cemetery Superintendents in the Royal Pavilion, Brighton, on July 18th, 19th, 20th, and 21st. All who are interested in the question of disposal of the dead by earth burial or cremation are invited to be present.

Under the auspices of several Governments and of the League of Nations Health Organization and the International unions against tuberculosis, venereal diseases, and trachoma, a congress on Mediterranean hygiene will be held at Marseilles, from September 20th to 25th, in close relation with the Marseilles Faculty of Medicine. The British Government will be represented by Professor G. H. F. Nuttall. The subjects to be discussed include: spirochaetosis, undulant fever, dengue, modern methods of ridding ships of rats, the exanthemata particularly characteristic of Mediterranean shores, and the medical aspects of emigration and immigration. Practical demonstrations are being arranged, and it is hoped that the conference will lead to international agreements in several respects which will have prophylactic value. Apart from the more definitely clinical topics, such subjects as sanitary engineering, the hygiene of coasts not subject to tidal influences, and hydrology will be dealt with. Those who wish to attend the congress should communicate with Dr. G. Baillière, 19, Rue Hautefeuille, Paris, VI, and send him the membership fee, which is 100 francs; in return they will receive a card entitling them to reduced fares on French railways and certain ships. Numerous excursions to places of interest are being arranged.

The fourteenth annual congress of the Swiss Medico-Biological Society will be held at Thun at the same time as that of the Swiss Society for Natural Science Research, from August 6th to 8th, when the subject for discussion will be the autonomous nervous system and the regulation of metabolism, introduced by Professor Roussy of Paris and Dr. Loeffler of Zürich.

The tenth International Congress for Psychology will be held at Copenhagen from August 22nd to 27th.

The Board of Control, with the approval of the Minister of Health, has appointed Mr. J. H. Cobb, M.B., F.R.C.S., as honorary consultant in connexion with diseases of the ear, nose, and throat occurring among the mentally defective patients at Rampton State Institution, Retford, Notts.

The Home Secretary announces that in accordance with a recommendation of the Health Committee of the League of Nations, communicated to His Majesty's Government by the Council of the League, an Order in Council has been issued under Section 8 (2) of the Dangerous Drugs Act, 1920, extending Part III of that Act, which provides for the control of morphine, heroin, and cocaine, to acetyldihydrocodeinone, its salts and any preparation, admixture, extract, or other substance containing any proportion of acetyldihydrocodeinone. The effect of the Order is that this drug (the trade name for which is acedicone), its salts, preparations, etc., may not be imported into or exported from the United Kingdom and Northern Ireland without a licence issued by the Secretary of State under the Dangerous Drugs Acts, and, as regards internal control, the Dangerous Drugs (Consolidation) Regulations, 1928, will apply. Acedicone is not manufactured in this country.

A bust of the late neurologist Dr. Gilbert Ballet will be unveiled at Limoges on the occasion of the thirty-sixth Congress of French-speaking Alienists and Neurologists on July 27th.

The tercentenary of the University of Tartu (Dorpat), founded by Gustavus Adolphus in 1632, will be celebrated this year.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The **TELEPHONE NUMBERS** of the British Medical Association and the *British Medical Journal* are *MUSEUM* 9861, 9862, 9863, and 9864 (internal exchange, four lines).

The **TELEGRAPHIC ADDRESSES** are:
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FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*
MEDICAL SECRETARY, *Medisecra Westcent, London.*

The address of the Irish Office of the British Medical Association is 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 24361 Edinburgh).

QUERIES AND ANSWERS

Abnormality of Taste

"E. M. R. F." writes: I would be glad of any suggestions from the experience of others in dealing with the following case. The patient is a man of 40 years of age, and a chauffeur by trade. For two months he complained more or less continuously of a constant sweet taste. On examination nothing abnormal can be found. Mouth, tongue, and fauces appear normal, the teeth are all artificial, and the gums healthy. Accessory sinuses shed no light, and neither do the digestive processes. The urine never shows sugar or albumin. He is a very moderate smoker. Treatment up to date has consisted of mouth-washes of every description, and all manner of bitter mixtures. The sweet taste continues unabated. He tells me that at meals, no matter what he eats, the taste disappears while masticating, but reappears between mouthfuls. Smelling powers are normal.

Gnat Bites

"J. A. S." asks for advice on the best preventive measures against gnat bites.

Oedema of the Feet

Dr. W. R. SOMERSET (Wolverhampton) writes: In reply to "E. S. W.'s" inquiry (July 2nd, p. 41) I suggest the trial of mist. chlori et quininae *B.P.C.* I have treated several cases lately with considerable benefit, possibly only of a temporary nature. The mixture must be freshly prepared every day and half a pint of water should be taken with each dose. It has a powerful diuretic action, and I have found that the oedema disappears in about three days. It can, of course, be repeated.

Income Tax

Motor Car Replacement: Personal Use

"H. H." bought a car in 1926 for £240. He has sold it for £30 and bought another second-hand car for £137—net cost of replacement, £107. So far 20 per cent. of the actual running costs have been disallowed as being applicable to private use, but he has been allowed the whole of the expense of licence insurance and the garage attendant. Is he entitled to the whole or only to 80 per cent. of the cost of replacement?

*** It is difficult to give a definite answer, because obviously the 20 per cent. of running costs is an estimate, and it is not clear what it was meant to cover. For instance, if 20 per cent. represents a fair estimate of private mileage, then *all* expenses should be reduced by 20 per cent. for income tax purposes. If the private use is, say, 15 per cent. only, then a recalculation of the whole expense on a uniform basis over a period of years might or might not give "H.H." some right to ignore the restriction as regards replacement costs—without detailed figures for some years it is impossible to say. We suggest for the future that a probable mileage basis be agreed and applied to all motor expenses, and also to an annual depreciation claim to be made in respect of the new car.

Interest on Unpaid Purchase Money—Cash Basis

"H. C." sold his practice as from April 1st, 1931. (1) The purchaser paid interest on the amount of the purchase price outstanding, but did not deduct income tax; his accountant now asks "H. C." to refund the amount which could have been deducted. (2) The value of the debts outstanding as at April 1st, 1931, was agreed with the inspector of taxes, and "H. C." is now being requested to pay additional tax on that amount as for 1930–1.

*** (1) Interest is taxable by deduction at the source and consequently "H. C.'s" successor will not be allowed to treat it as a professional expense, so that if the refund is not made he will be adversely affected. There is no legal right to claim the refund, as the right of deduction of tax applies only to the payments as they are made, but "H. C." will probably feel reluctant to take a strict technical objection which, in the long run, would not prejudice him unfairly but would be inequitable as regards his successor.

(2) There is no justification for adding the whole of the value of the outstanding debts to the assessment for 1930–1, or treating any portion of them as income of a later year. If the assessments for the six years to 1930–1 have been less by reason of the adoption of the cash basis than they would have been on the value of bookings basis they can be revised individually—but that is all. In other words, the adjustment to be made is not for the value of the debts outstanding at March 31st, 1931, but only for the excess of that amount over the value of the debts as at March 31st, 1924. It may be impossible now to calculate that amount precisely, but no doubt a reasonable outside estimate can be prepared.

LETTERS, NOTES, ETC.

Pulmonary Embolism after Injection for Varicose Veins

Dr. CHARLES SIMS (Cardiff) writes: In view of the infrequency of serious sequels to the intravenous injection treatment of varicose veins, apart from sloughing of the skin and superficial tissues at the site of injection, the following case seems to me to be worth recording in the *Journal*. A widow, 47 years of age, had enjoyed perfect health until July, 1931, when she attended a London hospital for treatment of varicose veins. She was given an injection into the right leg below the knee; unfortunately, it is not known for certain what solution was injected, but she was probably given 2 c.cm. of sodium morrhuate, as this was the treatment in use in the hospital at the time. Five days after the injection I saw her at her home. She was in severe pain, and was found to have phlebitis in the right leg extending from the site of injection as far as Poupart's ligament. The skin at the site of injection was normal. The inflamed vessel was hard and exceedingly tender. She was treated by rest in bed, and application of glycerin and belladonna to the leg over the vein for five weeks, at the end of which time the leg was quite painless, although the thrombosed vessel was easily palpable. After a further two weeks she was allowed to sit up. On the second day of convalescence, on her own responsibility, she started walking in her room, and was suddenly seized with severe pain in the left chest at the base posteriorly. I was called to see her about six hours later. She had in the meantime had a slight haemoptysis, and respiration was painful. On examination her temperature was 99°, pulse 120, and respirations 28. She was in great pain, had a slight cough, which she suppressed on account of pain, and was rather cyanosed. There was a definite pleural rub and dullness over a small area at the base of the left lung behind. By the following day there was a small pleural effusion on the affected side, and the patient was sent to a hospital. She there made an uninterrupted recovery in about eight to ten weeks. I suggest that this was a case of pulmonary embolism following thrombosis after an injection for varicose veins.

Simpson and Chloroform in Labour

Dr. J. LIVINGSTONE LOUDON (Hamilton) writes: On glancing through the amusing book, *Devils, Drugs, and Doctors*, by Dr. Howard W. Haggard, I notice two slight errors in the chapter dealing with anaesthesia in labour. (1) At page 105 Dr. James Y. Simpson is referred to as professor of obstetrics at the University of Glasgow! Edinburgh was of course intended. (2) At page 116, in connexion with his (Simpson's) title of knighthood, it is said that Sir Walter Scott wrote to Simpson and suggested as a coat of arms suited to his work on anaesthesia at childbirth "a wee naked bairn" with underneath the motto, "Does your mother know you're out?" Whoever wrote thus to Simpson it was not Sir Walter Scott, because he died in 1832, and Simpson first used chloroform in labour fifteen years later (1847). Moreover, if the coat of arms and motto were suggested in connexion with his title—that was thirty-four years after Scott's death, for Simpson was created a baronet in 1866.

Unusual Sequel to After-pains

Dr. H. N. Knox (Tring) writes: I attended a patient in a cottage here in her third confinement a short time ago; both previous pregnancies had been normal. Labour on this occasion was slow, and was terminated by low forceps. The condition of the patient seemed normal afterwards except for after-pains. On the third day the pains ceased, and I was shown a firm mass, the size of a hen's egg, which had been passed during the night. The patient had had no excessive bleeding and the uterus was involuting well. The swelling had no pedicle and was quite smooth. It was sent to the Pathological Department at King's College Hospital for microscopical examination, and was reported to be a fibro-myoma of the uterus. That the condition is rare is suggested by the fact that no case has occurred in the records of the last 7,500 deliveries in the Obstetric Department at that hospital.

Prolonged Catheter Life

Dr. D. LIVINGSTONE POW (Wrexham) writes: In view of the well-known dangers that attend catheter life in men suffering from enlarged prostate, the following case which recently came under my notice is of interest. The patient is a man of 82 years, somewhat broken down, but still able to get about in a quiet way. There is a large bilateral scrotal hernia, which almost obscures the penis from view. The prostate is enlarged, elastic, and presents no sign of malignancy. It is definitely stated that no urine has been passed naturally for the past fifteen years. During that long period the catheter has been in constant use. It is passed about 10 p.m. each evening, and thereafter the man enjoys an uninterrupted night. The urine is drawn off again about 6 a.m., again about an hour later, then about 3 p.m., and, finally, before retiring to bed. The gum elastic catheter used is boiled once or twice a week, otherwise it is given an ordinary cleansing with water after each withdrawal of urine, and stored in a cardboard tube. The urine, recently examined, was acid in reaction, had a specific gravity of 1013, showed a haze of albumin, and a comparatively small quantity of pus. A rough calculation shows that instrumentation must have been carried out some twenty to thirty thousand times.

Treatment of Undulant Fever

Dr. H. G. LANGDALE-SMITH (Stechford) writes: I was interested to read Dr. Forbes's article, on a case of undulant fever, in your issue of June 4th, and the apparent good effect of S.U.P. 36 on its course. In a case that came under my care in May last year I tried the same preparation, and it certainly seemed to have an excellent effect for, although the temperature continued, the patient's general condition improved, and the depressed feeling the patient complained so much of every evening was largely relieved after each injection, which I gave at the end of the third week at three to four days' interval. The patient was able to get about at the end of eleven weeks. Radiostoleum, I think, was useful in the last few weeks of the illness.

Radium and X Rays in Treatment

Dr. S. J. STREIGHT (Assistant Medical Director, the Canada Life Assurance Company, Toronto) draws our attention to two slips in the annotation with this heading in our issue of June 11th. The report under discussion was issued by order of the Legislative Assembly of the Province of Ontario. The chairman, the Hon. Dr. John Henry Cody, is rector of St. Paul's Anglican Church in Toronto and president-elect of the University of Toronto. The only medical member of the commission was Dr. W. T. Connell of Kingston, formerly dean of the faculty of medicine, Queen's University.

Hippuric Acid Synthesis Test

Correction in the Extra Pharmacopoeia

Mr. W. HARRISON MARTINDALE, Ph.D., F.C.S. (12, New Cavendish Street, W.1), writes: In preparing an abstract of an article on the above kidney function test by Dr. P. L. Violle, in the *Lancet* of June 11th, 1921 (p. 1239), for inclusion in my book, a mistake was made which has passed unnoticed through two editions. Instead of the patient being given glycocoll and hippuric acid, as stated, it should read glycocoll and *benzoic* acid. Curiously enough the author himself apparently made an error (or, alternatively, it was a misprint), as he commences by stating, "We give the patient a dose of 0.5 gram of glycocoll and 50 grams of benzoic acid." Later, a dose of 0.5 gram of each is referred to, and as this latter dose coincides with that given by him in a previous letter in the *Lancet* of April 17th, 1920 (p. 884), there is no doubt that this is what he intended. The abstract in future editions of the *Extra Pharmacopoeia* will therefore read "0.5 gram of glycocoll and 0.5 gram of benzoic acid."

Avoidance of Anaesthetic Accidents

Dr. DANIN (St. John's Hospital, Lewisham) writes: There is nothing more frightening to an anaesthetist than to read, as one did the other day, of a patient losing his life as the result of liquid ether having been pumped into the trachea by mistake. In my opinion there is only one easy way to avoid disastrous results from using the Shipway apparatus wrongly, and that is to mark every loose end by a letter. By connecting each end to that having the corresponding letter the apparatus is made practically foolproof. There should be definite letters on the three-arm tube in the hot-water flask: the tube to be attached to the oxygen cylinder should be marked "oxygen," and that going to the patient marked "patient."

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 44, 45, 46, 47, 50, 51, and 52 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 48 and 49.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 24.

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4. SOUTH MIDLANDS.—Old-established mixed-class and steadily increasing PRACTICE, situated in small country town in the midst of rich agricultural district. Cash receipts for the past 3 years average nearly £1,700 p.a., last year £1,798, including panel of over 1,200. Very good house (6 bedrooms, etc.) with ½ an acre of garden. Garage. Price freehold £1,500. Premium 1½ years' purchase.
5. SOUTH WALES.—LARGE TOWN.—PARTNERSHIP.—A one-third share, with increase later, is offered (after a short preliminary assistantship) in an old-established very good mixed-class Practice, averaging nearly £4,000 a year. Panel of 1,750. No appointments. Fees from 3/6 to 2 gns. Suitable accommodation can be secured. Ingoing Partner must be accustomed to good-class work, preferably Scotch or English. Premium for share 2 years' purchase, half down and balance by arrangement.
6. NORTHANTS.—LARGE TOWN.—PARTNERSHIP.—A one-third or two-fifths share is for disposal in a well-established mixed-class Practice, offering good scope for increase. Receipts average over £2,000 p.a. Panel of 2,000. Fees from 2/6. Suitable accommodation can be secured. Very moderate premium will be accepted for quick sale.
7. HOME COUNTIES.—Country PRACTICE in very attractive district, within easy reach of London. Old-established chiefly better-class practice, producing for last 12 months £970. Panel of over 500, and appointments worth about £60. Fees 2/6 to 21/-. Not much midwifery at from 3 gns. Very nice house, with all modern conveniences, and good garden. Garage. Price for freehold £1,700. Premium £1,450.
8. NORTH-WEST LONDON.—Old-established better-class non-dispensing PRACTICE averaging for the last four years about £840 p.a., including panel of about 120. Fees 3/6 to 21/-. Purchaser can choose his own residence if present house not required. Premium £1,050.
9. PARTNERSHIP.—SIX MILES NORTH-EAST OF LONDON.—Owing to the retirement of the senior Partner (through advancing age) a third Partner is required in a very old-established mixed-class Practice, in populous but pleasant open district. Receipts last year nearly £3,800, including appts. £100 and panel over 3,700. Very little midwifery. Good house with ample accommodation, at moderate rental. Fourth share to commence with. Prem. 2 years' purchase.
10. PARTNERSHIP.—SOUTHERN COUNTY.—Within 35 miles of London. A HALF SHARE is offered in an increasing country practice situated in delightful residential district. Gross cash receipts average over £3,000 p.a. Panel of 1,500, and appts. worth about £200 p.a. Commodious house in good position with large hall, 2 reception, 9 bedrooms. Garden, and garage for two cars. Freehold for sale. Premium 2 years' purchase.
11. YORKS.—LARGE TOWN.—Steadily increasing middle and working-class PRACTICE, producing nearly £700 p.a., including panel of over 500. Fees 2/6 to 7/6. Suitable house with surgery and waiting room, dining room, three bedrooms, and boxroom. Garden. Garage. Price for freehold £850. Premium 1½ years' purchase.
12. PARTNERSHIP.—YORKS.—(Within easy reach of coast).—A ONE-THIRD SHARE is offered in a very old-established good mixed-class practice, situated in an attractive town, having an up-to-date Hospital. Gross cash receipts for the last three years average over £6,000. Panel of about 2,400. Fees 3/6 to 2 gns. Midwifery 2 to 15 gns. House, in pleasant residential part of town, contains 3 reception, 5 bedrooms, etc. Good garden. Garage. Price £2,000, or might be rented. Premium for share £3,250. Ingoing partner should be married and accustomed to good-class work.
13. PARTNERSHIP.—DESIRABLE OUTLYING RESIDENTIAL SUBURB.—A suitable Partner (experienced, preferably married, about 30 years of age, and having the necessary capital) can acquire a share producing a gross income to commence with of about £1,250 in an old-established good mixed-class Practice worth nearly £8,500 last year. Option of further additional shares, at stated intervals, up to one-third. Good house, with ample accommodation, to rent or purchase. Premium two years' purchase.
14. MIDLANDS.—CATHEDRAL CITY.—Old-established better-class non-panel PRACTICE, producing for last twelve months £3,300. No appointments. Fees from 5/- to 21/-. Not much midwifery. Commodious house, with 2 reception, 6 bedrooms, etc. Price for freehold £2,000, part on mortgage. Good Surgical scope if required. Premium £5,000.
15. ESSEX.—COAST TOWN.—Very old-established non-panel (but good scope for this if wished) middle-class PRACTICE, averaging £1,156 p.a. Visits 5/- to 10/6, medicine extra. Very little midwifery. Expenses light. Detached house, with 2 reception, 3 bedrooms, bathroom, etc. Garden. Rent £100 p.a. on lease. Premium 1½ years' purchase.
16. YORKS.—EAST RIDING.—Well-established unopposed PRACTICE within reach of the coast, and near large town. Cash receipts for last 12 months £950, including panel of 630. Fees 3/6 to 10/6. House contains 3 reception, 3 bedrooms, etc., and professional accommodation. Garage. One acre of garden. Price for freehold £900, part on mortgage. Hunting, shooting, golf, etc. Premium £1,175.
17. SOUTH-COAST TOWN.—Chiefly middle-class non-panel PRACTICE, averaging over £500 p.a., but offering scope for increase. Fees 2/6 to 10/- Eight-roomed house with kitchen, etc., and professional rooms. Can be rented or purchased. Premium £600. Vendor retiring.
18. PARTNERSHIP.—EASTERN COUNTIES.—A third Partner is required in a good mixed-class Practice, situated in very pleasant market town within reach of the sea. The share offered at first will produce about £1,000 p.a., with increase eventually up to one-half. Practice is old-established and producing about £4,500 p.a. Panel of 1,600. Choice of houses, or ingoing Partner could reside in rooms. Premium 2 years' purchase.
19. SOUTH-WEST OF ENGLAND.—PARTNERSHIP.—A one-third share is offered in a good middle and better-class Practice situated in an attractive country town, near coast. There is a Hospital of 50 beds, and good Surgical scope. Average gross cash receipts over £3,000 p.a. Selected panel of 570. Fees 4/- to 21/-. Choice of houses. Premium 2 years' purchase.
20. YORKSHIRE.—PROSPEROUS TOWN.—PARTNERSHIP.—A one-third share (with increase later) is offered in a good middle-class non-panel Practice, averaging £3,300 p.a. Fees 3/- to 2 gns. Nice house, with 2 reception, 4 bedrooms, etc. Small garden. Electric light. Garage. Price for leasehold £1,200, £800 on mortgage. Good sport and excellent schools. Very good Surgical prospects. Premium for share £2,000.
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22. SOUTH OF ENGLAND.—FAVOURITE COAST TOWN.—Old-established chiefly better-class PRACTICE, producing about £1,800 p.a. Small selected panel. Fees 3/6 to 10/6. Not much midwifery. Good house, with ample accommodation, and garden. Freehold for sale. Premium £3,000.
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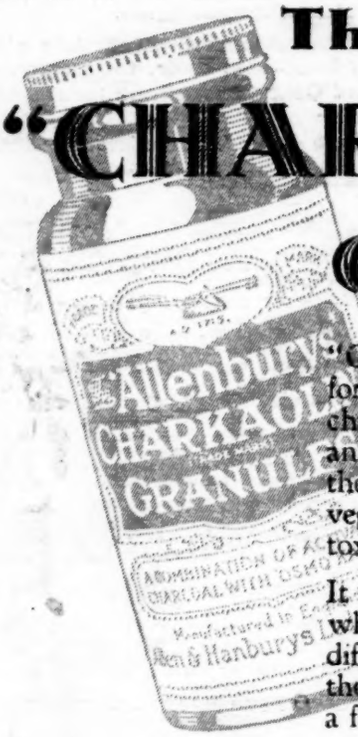

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